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ABSTRACT

Of the 50 papers, selected titles include "Redefining the Client, Expanding the Evaluator's Role" (Weldon, Gibson); "Professional Contacts for Evaluator's Expanding Roles" (Dowd); "Vocational Evaluators and the Law" (Kass); "Ethics in Vocational Evaluation" (Early); "Professional Advocacy in Vocational Evaluation and Assessment" (Bowers et al.); "Pre-Employment Placement Screening" (Taylor); "Career Assessment to Facilitate Adult Life Transitions" (Mullins); "On-the-Job Evaluations" (Kell); "Considerations for Job Selection and Placement of Persons with Cumulative Trauma Disorder" (Lopez); "Forensic Vocational Evaluation" (McDaniel); "Marketing Plan Development" (Grissom, Nelson); "Understanding the Unique Contributions of Occupational Therapy within Vocational Assessment" (McCracken); "Rehabilitation Counseling and Occupational Therapy Working Hand in Hand" (Fryman, Melickian); "Non-Relational Databases in Rehabilitation Facilities" (Prachyl); "New Gameplan for Vocational Evaluators" (Williamson); "What WAT Is and What WAT Is Not" (Ayella); "Four Perspectives of Vocational Evaluation" (Nolte); "Marketing the Non-Profit Evaluation Service to Private Industry" (Vohlken); "Model for Vocational Evaluation in Community-Based Employment" (Botterbusch); "Toward Consensus" (Ayella et al.); "Job Matching Systems" (Truthan); "The Trial and Tribulations of a First Time Vocational Expert" (Magrega); "Vocational Evaluation of Closed Head Trauma" (May, Wilkins); "Vocational Assessment for the Severely Physically Challenged" (Peterson, Oliveira); "Illinois Vocational Interest Survey and Assessment" (Sprengel, Moradian); "Vocational Evaluation of Persons with Combined Hearing and Visual Impairments" (Kaskel); "Integrating Vocational Assessments with Special Education Triennial Reevaluations" (Levinson); "Role of School Psychology in

Vocational Assessment" (Levinson); "Curriculum Based Vocational Assessment at the Middle and Secondary School" (Swisher); "Role of Assessment in the Transition/Education Process" (Schmitz); "Concurrent Validation of the Abbreviated McCarron-Dial System for Students with Mental Retardation and Learning Disabilities" (Kimmel); "Use of a Robotic System in Vocational Assessment" (Robbins et al.); "Analysis of Private Sector Rehabilitation Case Managers' Opinions Regarding Work Hardening and Work Capacity Evaluation Programs" (May); "Vocational Patterns and Work Concepts of Recovering Alcoholics" (Ridlehoover); "Correlates of Consumer Satisfaction with Vocational Evaluation Services" (Early, Bordieri); and "Comparison of Rehabilitation Clients Tested and Self-Estimated Vocational Aptitudes and Interests" (Bond et al.). (CML)

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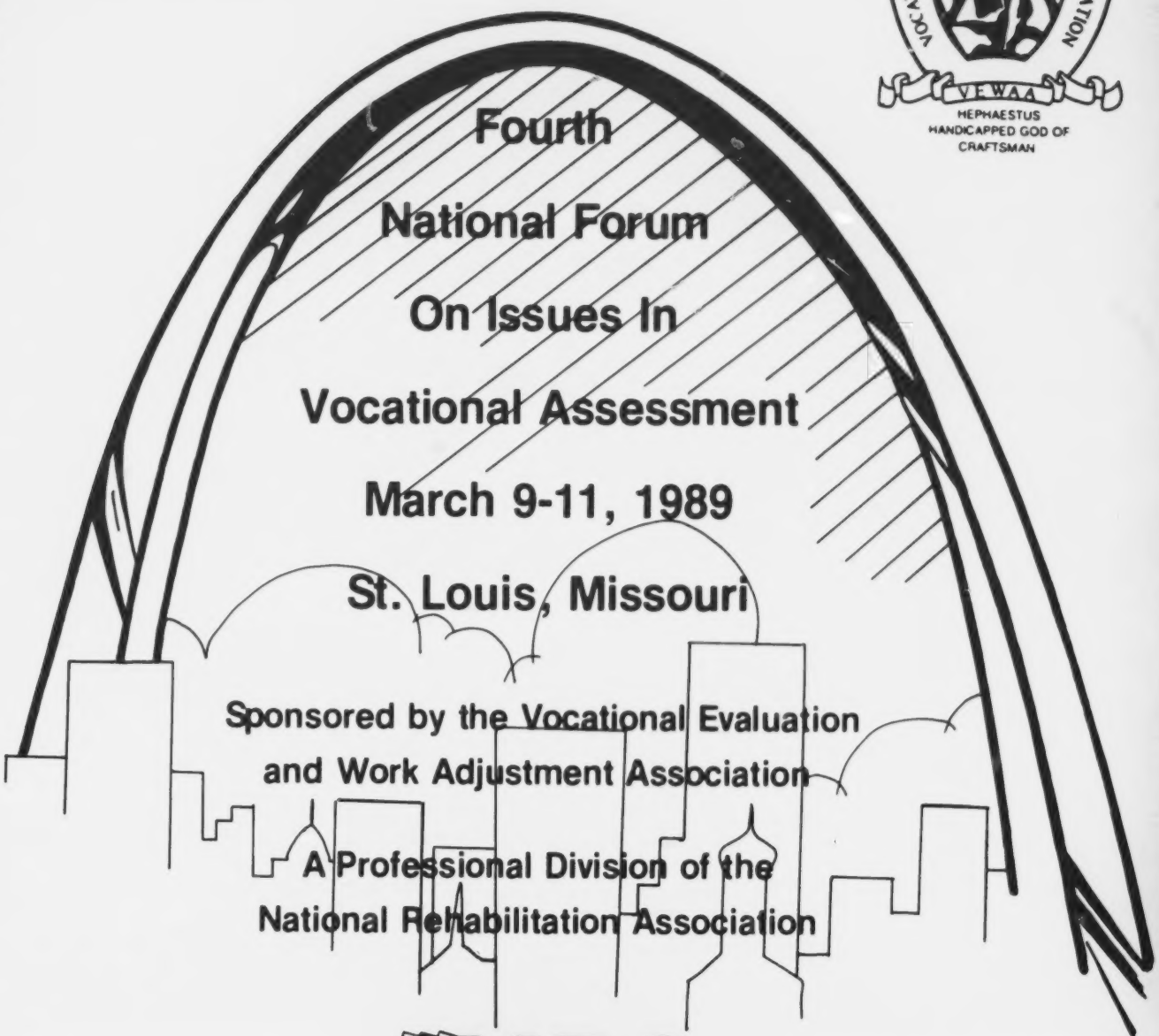
THE ISSUES PAPERS



Fourth National Forum On Issues In Vocational Assessment

March 9-11, 1989

St. Louis, Missouri

Sponsored by the Vocational Evaluation and Work Adjustment Association

A Professional Division of the National Rehabilitation Association

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Fourth
National Forum
On Issues In
Vocational Assessment

The Issues Papers

Edited by

Ronald R. Fry

Papers presented at the Fourth National Forum on Issues in Vocational Assessment, March 9-11, 1989, St. Louis, Missouri.

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FOREWORD

This compilation of papers represents the presentations made at the 4th National Forum on Issues in Vocational Assessment held in St. Louis, March 9-11, 1989. This was the biggest forum ever--six general sessions involving 21 presenters and 55 papers sessions with 75 presenters. There were approximately 260 people present, representing evaluation and assessment from the disciplines of education, rehabilitation and allied health professions.

It's a fact that our field is changing rapidly. When change is happening, it naturally brings about issues, concerns, agreements, and conflicts. With that goes a need for discussion and candidness. When VEWAA began planning the 4th forum, it made the decision early on that the forum should be built around current issues in vocational evaluation and vocational assessment. Participants in the 4th forum would likely agree that the forum faced many issues straight on!

The forums are sponsored by the Vocational Evaluation and Work Adjustment Association, a professional division of the National Rehabilitation Association. When forum pioneers Gary Sigmon and Randy McDaniel started out with the first forum in Atlanta, 1984, it was somewhat of a trial balloon to see how it would be received and if people wanted to do it again. They did and the second, third, and fourth forums were held after that, each one different than the last but always with new ideas, discussion, and sharing. The forum is no longer an idea to be tried--its part of VEWAA's program of activities. We're already planning a 5th national forum!

A very special thanks go to the Missouri VEWAA chapter. They, and their president, Michele Meyer, did an outstanding job of planning and hosting the event.

Ronald R. Fry
Coordinator
Fourth National Forum

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COMMERCIAL MARKETERS: DO THEY HELP OR HINDER THE FIELD

Stephen W. Thomas

Abstract

Some practitioners feel that marketers/developers have de-emphasized the role of professional evaluators in the assessment process, and are responsible for the dramatic reduction in the length of evaluation services. On the other hand, some marketers feel that their products have substantially added to the credibility of the field, and have increased its visibility. This paper highlights panel and group discussions that addressed the issues related to the impact that commercial evaluation/assessment system marketers and developers have on the reputation and practice of evaluation services.

INTRODUCTION

One of the most unique and distinguishing aspects of the vocational evaluation/assessment process is its use of work samples. Today, there is a wide variety of commercial evaluation and work sample systems available for use in an ever expanding service market. Their popularity has dominated the field and, next to psychometric tests, are the most widely used evaluation tools, exceeding the utilization of situational assessments and job site evaluations.

This extensive use has led to the dramatic growth in the development and marketing of many different kinds of commercial evaluation and assessment devices. Some of the newer systems incorporate the latest in computer technologies and have significantly reduced overall evaluation time. The process of commercialization provided many evaluators with instruments that were far more sophisticated and standardized than what they could develop locally. As a result, the accuracy and reputation of many assessment processes were increased. The unnecessary length of some long-term evaluation processes could be controlled and minimized and the assessment time better utilized.

With an eye on new markets, commercial system developers and marketers aggressively vended their products while at the same time exposing their new audiences to the concepts and processes of vocational evaluation and assessment. As a result, the growth and recognition of evaluation practice has been accelerated.

However, there have been complaints that these and other positive contributions by commercial marketers and developers have not come without their downside. Some system marketers have claimed that their products can be used exclusively with almost any client/student population. As a result, some purchasers have obtained systems that did not effectively meet the needs of individuals originally targeted for the evaluation service.

Critics have also charged that the length of some evaluation/assessment processes has been inappropriately reduced to coincide with the time requirements of the commercial systems that were purchased. Additionally, thorough statistical analysis and standardization is lacking in a number of systems. Specific problems, weaknesses, and limitations in commercial systems have not always been shared prior to a sale, resulting in the purchase of a system that does not fully meet the needs of the purchaser. Lastly, some marketers have convinced system purchasers that users need not be skilled or knowledgeable about vocational evaluation in order to be able to use their system. This has often diminished the value of the qualified evaluator in the hiring process in favor of cheaper,

less qualified applicants.

This ongoing controversy prompted the inclusion of a session at **The Fourth National Forum on Issues in Vocational Assessment** entitled, "Commercial Marketers: Do They Help or Hinder the Field?" This opening forum session began with an introduction of the problem, and was followed by a debate on the issues between two commercial system marketers/developers and two vocational evaluation service providers. The audience was given time for questions and comments, and then organized into small discussion groups with the specific goal of developing and presenting recommendations for resolving the issues under debate. Special thanks are extended to the four outstanding professionals who agreed to participate in the debate. They are: Cheryl Bowers, President, Career Vocational Assessment, Inc., San Jose, California (service provider); Thomas L. Brandon, President, Work Recovery Systems, Tucson, Arizona (marketer/practitioner); Randy Lindsey, Director, Vocational Research Institute, JEVS, Philadelphia, Pennsylvania (marketer/practitioner); and, Fran Smith, Vocational Assessment Specialist, Mt. Vernon Assessment Center, Alexandria, Virginia (service provider). The remainder of this paper will review the major issues/problems identified during the debate and the recommendations from the audience regarding their resolution.

SERVICE PROVIDER POSITION

Following are highlights of the concerns presented by Bowers and Smith at the beginning of the debate.

1. Through their advertisements, commercial marketers seem to offer the promise of meeting Federal mandates (e.g., the Carl Perkins Act) while promoting the increase in quick screening devices. Meeting the intent of regulations and mandates does not always fully address what is beneficial to the person needing the service.

2. There are no qualifications for the purchase and use of work samples. While in search of new evaluation/assessment markets, companies have moved away from selling systems to experienced evaluators. In the process, emphasis had been placed on the relative ease of using commercial systems, thus giving the impression that vocational evaluators need be little more than technicians.

3. In some instances training is limited. It often fails to address interpretive strategies and there is limited, if any, follow-up to insure that administration and use is standardized.

4. Some commercial systems lack interpretive information and vocational relevance. This is a critical problem for evaluators who do not have the time or skills needed to conduct local job analysis or normative activities.

5. Many systems continue to suffer from questionable, or a lack of reliability and validity studies. Ongoing research is frequently nonexistent or not geared to the needs of current users.

6. Developer follow-up with users regarding immediate and long-term needs is limited and practitioners are not routinely consulted or involved in system research.

7. With some systems there is poor quality control in development, and replacement parts are different from the originals, thus potentially contaminating standardization.

8. Some marketers are more interested in the commission earned than in the appropriateness of the system to the purchaser.

MARKETER/DEVELOPER POSITION

In addition to responding to some of the service provider concerns, a number of issues were presented by Brandon and Lindsey and included in the following information.

1. Commercial system developers engage in activities that practitioners and university programs do not or cannot do. These include surveying the field for its needs through extensive contact and follow-up, and developing and maintaining contact with business and industry in order to keep track of trends and needs.

2. Through the use of their instruments, marketers have "chauffeured" the field of evaluation/assessment into schools and the private sector.

3. Professional developers have made a significant commitment to the field since bottom line profits are only around 15%.

4. Between 5% and 9% of all sales are specifically in the field of rehabilitation and the remainder are ouside of this discipline. In spite of this small market, commercial venders and developers continue to give allegiance to rehabilitation.

5. Contrary to criticisms, follow-up of product sales is provided to purchasers of systems.

6. System developers routinely commit finances to new research and development, as well as ongoing research.

7. Marketers did not speed up the process of vocational assessment, Federal law did.

DEBATE REBUTTALS

The succeeding statements were presented by the panelists at the conclusion of the debate.

1. It was agreed that work samples influence the definition of our profession and are an extension of our capabilities.

2. Just as practitioners are often themselves instrument marketers, in turn, system marketers frequently promote evaluation and assessment services.

3. Regardless of the qualifications needed to

purchase and use work sample systems, someone is going to conduct evaluation regardless of training or instrumentation.

4. It is not as much the work samples but the interpretation and accuracy of what is recommended that carries the greatest importance.

5. Marketers must show responsibility in what they sell.

AUDIENCE RECOMMENDATIONS

Concluding the debate, and questions and comments period the audience was divided into seven small groups and instructed to identify two problems and solutions (including responsible parties) that would address the issues discussed throughout the debate. It is interesting to note that the recommendations were geared more to the needs of evaluators and the profession than to marketer and developer problems. It was the consensus of the group that the problems associated with commercial evaluation systems could be minimized if they were in the hands of skilled professionals. Following are the major outcomes that have been synthesized from the small group session.

1. **There is a shortage of adequately trained vocational evaluators to fill the available positions.** Considerably more graduate programs in vocational evaluation/assessment must be developed with an emphasis on locating them at universities in geographic areas currently devoid of such training. The need for more professional development institutes was consistently identified as a critical problem area. These could be sponsored by VEWAA and other related professional groups, regional rehabilitation training programs, and university continuing education programs. It was recommended that VEWAA consider applying for a national training grant to offer workshops in geographic areas with the greatest need.

The personnel shortage issue could also be addressed by increasing the current salary structure to make evaluator positions more appealing to highly capable individuals. Massive recruitment efforts should be mounted by university programs to generate more qualified applicants. Coordinated efforts to increase the image and visibility of the field will assist with student and evaluator recruitment activities.

2. **There is limited research on instrumentation and the effectiveness of evaluation/assessment services.** Whenever possible, research should be conducted in cooperation with practitioners (in a variety of settings), evaluation system developers, and university faculty. Topics that should be addressed include: what is most important to the consumer and referral source; follow-up on success rates and outcomes of evaluation clientele; norms and standardization; and, new models for evaluating difficult and underserved populations. Product research by practitioners, evaluation units, and university programs should be encouraged and funded through VEWAA mini-grants and gifts/grants from system developers.

3. **Greater involvement from national certification and professional organizations is strongly encouraged.** It was recommended that methods for evaluating the evaluator be improved and the certification process be changed accordingly. Efforts should be made to increase broad national recognition for certification. The development of probationary periods for Bachelor's level certification and other forms of provisional certification is also recommended.

4. **A VEWAA product approval board should be developed.** Such a board could review and endorse evaluation/assessment products meeting high published standards.

5. **We should take more responsibility for our profession.** All professionals need to be directly involved in identifying problems, promoting the field, maintaining professional skills through regular training, supporting our professional organizations and certification body through membership, and constantly evaluating who we are, what we do, and who we serve.

6. **The field must always ensure that quality services are being offered.** Some programs are not concerned with, or even aware of, what "quality" evaluation/assessment services are. Training should be offered from the top down so that administrators can appropriately set "informed" policy for the provision of highly beneficial vocational evaluation services.

CONCLUSION

Developers and practitioners should take time to better understand each other in order to work toward the goal of more effective assessment/evaluation services for all populations. An important part of this cooperative working relationship is the willingness to participate in appropriate training and research. Until such a two-way relationship can be developed, the problems identified in this paper (whether real or perceived) will never be fully resolved.

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ETHICS CHECK: ARE YOUR ETHICS UP TO DATE?

JUDITH K. EARLY
DR. STEVEN THOMAS
BARBARA H. AZZAM - MODERATOR

Abstract

The following is a summary of the General Session presented at the Fourth Forum on Issues in Vocational Assessment.

Ms. Early spoke to current ethical and professional issues in Vocational Assessment. A brief discussion of morals was followed by six areas of concern:

1. **Responsibility** - accountability to clients being served and responsibility to report unethical practices to the proper authority.
2. **Professional Competence** - ability to understand and interpret information to clients, working knowledge of the world of work and familiarity with human behavior studies.
3. **Confidentiality** - privacy for clients by sharing information only with parties named in writing and approved by the client.
4. **Interprofessional Relationships** - the use of networking among peers and related professionals for the most desirable outcome for clients.
5. **Publishing** - transmitting valuable information to other professionals ultimately affecting the growth and development of this profession.
6. **Consultation** - this should only be undertaken by qualified professionals in the context of their area of expertise.

Ms. Early further discussed the concept that a Code of Ethics actually attempts to provide a conscience for the discipline and its practioners as expressed by Julian Nadolsky in 1986. The need for more concise definitions of ethical behavior was also discussed.

Kitchner's five guiding principals of resolving ethical delimas were discussed:

1. Autonomy - making one's own decisions.
2. Fidelity or Loyalty - being faithful and keeping promises.
3. Justice - equal or unequal treatment based on the problem.
4. Nonmaleficence - avoidance of causing harm.
5. Beneficience - desire to do good for others.

As society and the field of Vocational Evaluation changes over time, old solutions and techniques become obsolete. For this reason the development of a Casebook to further define and develope the principals set out in the VEWAA Code of Ethics is urgently needed.

Please refer elsewhere in this publication to Ms. Early's paper: "Ethics in Vocational Evaluation: A Foundation for Future Study".

Dr. Steven Thomas followed by speaking on CCWAVES's recently developed Code of Ethics. This code is somewhat more complex and specific than the VEWAA Code of Ethics. Various groups including the VEWAA Ethics Committee, were asked for review and

comments prior to adoption of the final document.

The CCWAVES Code of Ethics is made up of three levels:

1) **Tenets** which are general principals shared by all three professions.
2) **Standards** which further define the Tenets.
3) **Guidelines** which insure greater understanding of the Standards and provide a functional method for determining compliance with the ethical principles inherent in the Standards and Tenets.

Dr. Thomas briefly discussed this document further before turning to the issue of compliance and enforcement. He stated that all the work undertaken by CCWAVES was being reviewed by an attorney to determine whether it would be legally enforceable. If this is the case CCWAVES plans to adopt processes similar to those currently being used by other professional licensing and certifying Boards and Commissions.

Discussion from the audience produced the understanding that if a person against who a complaint has been filed is not a member or certified by the Commission then neither CCWAVES or VEWAA would have any jurisdiction to sanction their behavior or actions. For this reason it is extremely important to support Certification and Professional membership as a means of insuring quality, ethical services.

It was briefly discussed that there are currently lawsuits which have been filed against Rehabilitation Professionals questioning their ethics. To date one of these suits has been dropped. This situation further supports the need for continuous discussion among members of ethics and the ongoing need to maintain Malpractice Insurance.

Finally, Mrs. Azzam discussed the current projects of the Ethics Committee. A Conflict of Interest Policy has been developed for the use of the VEWAA Board and will be reviewed at the next Board Meeting. A Casebook is also being developed to address ethical delimas and solutions. Volunteers to work on this project were solicited.

This general session was well attended with active participation of the attendees. It provided food for thought as well as valuable information.

"Redefining the Client, Expanding the Evaluator's Role"

Rock Weldon, MA
Gale G. Gibson, MA

ABSTRACT

Vocational Evaluators are traditionally employed in facilities or evaluation centers where their main focus in to provide services to persons of disability, or to injured workers. Their primary efforts are to administer and interpret test results and/or work samples, so that jobs and career paths are identified in ways that withstand the severest scrutiny and challenge.

This paper explores the idea of shifting the Evaluator's focus towards working more closely, and having more direct contact with the employer.

Possible benefits may include: (a) better services to the person of disability, or injured worker, (b) improved placements, (c) greater utilization of the job analysis and job modification skills possessed by Evaluators, and (d) promotion of a more team-oriented approach between the Employer, Counselor, Evaluator and Job Placement Specialist.

INTRODUCTION

Historically vocational evaluation has been a part of the rehabilitation process, taking place in employment settings. More recently evaluations are becoming part of school programming and are becoming more and more prevalent in the private for profit rehabilitation area. Still many evaluators have a limited, tradition bound view of what constitutes a proper evaluation, and have become rather rigid in their ability to generalize to other polulations (Edgcomb,1986).

Examining the knowledge and performance areas in the Standards and Procedures Manual for Certification Maintenance (CCWAVES, 1987), it is rather obvious that most Evaluators do not consistently utilize the majority of these skills that provide us with a professional edge. Job analysis, occupational information, adaptation of jobs and vocational training are probably the skills most underutilized.

For the past several years professionals in the field of Vocational Evaluation have begun to analyze the future of the profession. Citing disturbing trends which... suggest that vocational evaluation... may be a dying discipline, McDaniel (1987) sends a clear message that we cannot ignore. Steps must be taken to nurture the existance of this field. McDaniels' dying discipline scenario provided a departure for answering "why" and "what to do questions" at VEWAA's Third National Forum in Clearwater, Florida. A significant number of participants felt that there were a number of "professionalism" challenges that ought to be taken up. Others felt that a lack of organization, inadequate funding, identity crises, and incompentance more clearly described vocational evaluation's problem. For still others, credentialing and licensure, political action and marketing to the multi-disciplinary team became prescription for change, and the list went on. There was, however, no formula that would increase the demand for vocational evaluation services.

DISCUSSION

Possibly (Edgcomb, 1986) comes closest to the heart of the matter when she says that we need to take a look at the systems outside of rehabilitation and adjust our services to meet the needs of the clientele. Sawyer (1987) believes that vocational evaluation should have an advantage in the marketplace because of its track record. If vocational evaluation's rightful place in the hierarchy of human

services has not yet been assured, then we must ask ourselves why.

When targeted markets do not buy, the product/service has not been sold; it's a simple truth, but knowing the truth does not set us free. Why a product/service does or does not sell is always problematic. Of course, there;s also the possibility, as with any noncompetitive offering in a competitive market, that the product/service's life should die a natural death. In the case of vocational evaluation, we don't believe the time has come. For us, the truth must then be lodged somewhere in the fact that the service has not been successfully sold to the targeted markets.

Economists focus on supply-demand relationships to determine and recommend logical courses of action. Enterpreneurs rigorously analyze needs in a effort to forecast and acquire adequate return on investment. Product and service distribution strategy demands realistic analyses of perceived need, an efficient response vehicle, and understanding of competitive strength in order that the provider of goods and services remain viable. Why should it be any different for vocational evaluation?

We recommend a close and detailed look at the economic drivers that compel evaluations be performed with the comprehensiveness for which our training prepared us. Two such drivers, Reasonable Accommodation and the Graying of the Workforce, stand out as viable nitches in which vocational evaluator's skills can be readily applied and are sorely needed.

Employers are beginning to realize that it makes good business sense to get injured workers back to work. A recent worker compensation case in the state of Washington is instructive; Julius Reese was receiving treatment for chronic foot pain while working at Sears, Robuck & Company, The treating physician released Reese for "lighter" duty work. Sears denied Reese, unless he could return to work in his "full capacity" with a full medical release. Reese brought suit against Sears alleging the employer "had failed to reasonably accomodate the handicapping condition." The Washington State Supreme Court found that the Industrial Insurance Act stood separate and apart from the laws against discrimination and the two remedies were separate and distinct. They found also that Reese had suffered two separate injuries: a workplace physical in jury and a subsequent injury arising from the employer's alleged handicap discrimination (Brucker, 1987).

The graying of the workforce in the United Stated is a well documented phenomenon (Eleventh Mary Switzer Memorial Seminar, 1986). Employers are beginning to realize that not only is the workforce graying but there is going to be a smaller number of people available for the workforce as we begin to experience the aftereffects of the "Baby Boom" generation.

To cite the obvious from a different perspective, employers need the expertise of vocational evaluators to reduce the real liabilities they face. The training and experience evaluators bring to the table can be very useful for employers in trying to accommodate the special needs of the graying workforce. Recent discussions concerning the meaning of the court case as well as the changing workforce can be summarized as follows:

a. Compels employers to know much more about the requirements of their jobs than before (job analysis),
b. Compels employers to know what other jobs their employees can perform in the event that an injury prevents their return to the job of injury (transferable skills analysis), and
c. Compels proactive and aggressive measures be taken by employers to accommodate the needs of injured (disabled) workers with respect to returning to work with the employer of injury (matching the abilities of workers with demands of jobs).

PERSPECTIVE: Client, Product and Service

The "marketing" approach to the distribution of goods and services has been developed into an extremely successful discipline. As it applies to Vocational Evaluator's some adjustment is required in the typical rehabilitation professional's thinking:

> "We cannot ignore the fact that this success was built on the basic premise that the customer is at the absolute center of the marketing program. In fact, the marketing philosophy insists that every facet of the marketing effort be built around the customer. Thus, for our purposes, the employer is viewed as the 'product' (Nineth Institue on Rehabilitation Issues).

It may be objectionable to some vocational evaluators that we call an employer "customer" and that we call a potential worker "product" but for the sake of orientation perspective, it is helpful. As with any marketing endeavor, our products (workers, job seekers) must appeal to our clients (those who buy our products: clients/customers) or the sale (filling the job opening) is not accomplished. The "value added" that sells our products is the service we supply. We can increase the value of our product through training and counseling. We can more comprehensively serve the needs of our customers when we understand their needs (job requirements, analysis).

SUMMARY

McDaniel and Sawyer have very thoroughly outlined the problems and some possible solutions for the field of Vocational Evaluation. One possible solution they may have overlooked, however, is to increase the demand for vocational evaluation services.

First, it is recommended that Vocational Evaluators better utilize the skills that are most unique to them, that is, job analysis, occupational information, adaptation of jobs and vocational training.

Secondly, we need to embrace a more "marketing" oriented approach in which we shift our focus from the client as a customer to the client as the product.

Approaching the delivery of vocational evaluation services in this manner should greatly enhance services to disabled workers and will promote a more team-oriented approach between the Employer, Counselor, Evaluator and Placement Specialist.

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PROFESSIONAL CONTACTS FOR EVALUATOR'S EXPANDING ROLES

LYNN ROTHACKER DOWD, M.A., CVE

Abstract

In recent years, changes have occurred in the types of vocational assessment services provided, the populations served, and outcomes for the individuals who are recipients of assessment services. These changes have resulted in a significant role strain on the professional evaluator and highlight the need for collaborative effort with other professionals and the promotion of a broader view of evaluator's expertise. To meet the current challenges, vocational evaluators must develop skills in communication, collaboration and negotiation. These skills are essential in both program development and the resolution of specific client cases.

The Changing Profile of Vocational Assessment

The scope of the field of vocational assessment has changed dramatically in recent years. According to Sawyer (1988), the need for assessment services have expanded as "markets and service settings are being identified in every sector of society..." (p.9) As these new directions are found, "the role and use of assessment information is likely to be in constant change, causing reshaping of practice and delivery" (Menz, 1987, p.68). For the field of vocational assessment, this widespread change poses a challenge in retaining influence over services as well as the competency, qualifications, and professional identification of the practitioners who provide them. For the practitioner, these changes pose a significant role strain and require the development of many new essential skills.

Many professionals entering the field still do so without prior training. These individuals generally acquire the knowledge and skills to meet the technical responsibilities of their position through on-the-job training. This training enables them to become skilled technicians but does little to empower them to extend beyond that role. Undergraduate and graduate programs inform students of field advances, however, coursework emphasizes the acquisition of technical skills and does not provide students with the personal development opportunities necessary to meet the demands of their changing role. This is true of short term training programs as well as degree programs. Training opportunities, both degree and non-degree are not only limited in scope, they are also limited in number. Thus, the onus is placed on the professional to develop the skills necessary to meet the demands of their professional role.

The forces impacting on the field and its constituents have been identified by a number of professionals (Ayella & Leconte, 1988; McDaniel, 1986, 1988; Menz, 1987; Sawyer, 1987). They originate both within and outside of the field and imply fundamental changes in populations, service delivery, and outcomes of the assessment process.

Changing Populations

Perhaps, one of the greatest shifts in service delivery is extending assessment services to populations more severely disabled than those who traditionally have been served. "Advancements in medicine to diagnose and treat many formerly untreatable health problems have brought many new, and more severely disabled persons into vocational appraisal settings" (Ayella & Leconte, 1988, p.21) Federal priorities have emphasized the rehabilitation of difficult to serve populations, such as persons with traumatic brain injury (TBI). Traditional assessment approaches have not proven particularly effective for this population and evaluators necessarily have relied on information from other professionals including doctors and therapists to help develop and refine suitable assessment techniques. Deinstitutionalization has brought many individuals who are severely disabled to assessment settings as well. These individuals, again, pose a challenge to the evaluator in the development of appropriate materials and innovative service models to meet their intensive needs. Most evaluators lack special training related to individuals with TBI, those who have been instituitionalized and other severely disabled populations. For any population, especially those difficult to serve, collaboration among professionals is essential.

Changing demographic factors have resulted in an increase in individuals with cultural and/or language differences in our society. Because their educational, training and employment needs may be difficult to identify, many are finding their way to assessment settings. At present, most programs are ill-equipped to deal with the unique instructional needs of Hispanic, Asian, and other ethnic groups. Some commercial assessment tools now provide Spanish directions, however, this is a very small step to meeting the comprehensive needs assessment needs of this population. Language proficiency, an understanding of the work ethic and behaviors of other cultures are skills which must be acquired by the evaluator. Professional resources such as translators and cultural experts are necessary to make assessment services applicable for these populations.

Individuals who can benefit from assessment services will continue to be identified in increasing number. Welfare recipients, displaced workers, Acquired Immune Deficiency Syndrome (AIDS) patients, substance abusers, senior citizens, and individuals who are just interested in changing careers are among the growth populations for vocational assessment. Evaluators will need to rely on the expertise of other professionals as they continue to define and refine services appropriate for particular populations.

Changing Services

Referrals for assessment services are made for a variety of reasons each with an associated service model, a desired set of informational outcomes, and a group of professional contacts who shape the process.

"In schools, vocational appraisal services are conducted to help insure appropriate placement of students for successful vocational programming, to plan vocational development and to facilitate the transition from school to work." (Ayella & Leconte, 1988, p.22) The evaluator's role in schools is quite different from other settings. According to Neubert (1986), evaluators in schools often act as advocates for students in the vocational placement process, assist with the recruitment of students for vo-tech programs, and provide in-class support to vocational instructors. To accomplish this, public relations efforts on the part of the evaluator were viewed to be essential. They "enhanced the implementation of vocational recommendations and helped handicapped students gain access to vocational education." (p.103) The emphasis on transition services now extends the school-based evaluator's public relations efforts beyond the school into the community.

In public and private non-profit rehabilitation, evaluators must be aware of the range of employment and community service options available locally because the needs of the populations they generally serve are quite diverse. Ongoing liaisons with service providers are necessary to determine current program offerings, program availability, funding sources, and specific client eligibility.

When assessment services are provided in private-for-profit rehabilitation, Workers' Compensation and Social Security cases, the focus is placed primarily on settlement. "The economics of wage earning potential, wage loss, and costs of successful return to work are critical for these

agencies." (Ayella & Leconte, 1988, p.22). In these cases, collaboration with attorneys, insurance representatives, economists, and a variety of others professionals often is necessary.

Federal initiatives also have altered models of vocational assessment service delivery. Supported employment and school-to-work transition, which emphasize community involvement, place less importance on commercial instrumentation and greater weight on informal assessment in actual employment settings. The clinical skills of the evaluator are essential in the creation of viable community based assessment alternatives. These techniques offer possibilities which exceed those provided via commercial tools. For practitioners working in this area, information sharing and collaboration with employers, other community based personnel and parents is necessary.

In medical rehabilitation settings, evaluators work in cooperation with therapeutic and work hardening programs to determine appropriate vocational alternatives should an individual not be able to return to his/her previous position. Collaboration with doctors, physical and occupational therapists, rehabilitation nurses, and social workers enable the comprehensive needs of the individual to be addressed. More important than collaboration in the assessment and recommendation process is consultation prior to assessment to ensure that assessment activities which potentially may harm or add injury are not included within the evaluation plan for that individual.

Field developments also have given rise to new assessment models such as curriculum based vocational assessment (CBVA). In contrast to other assessment services, CBVA is an ongoing process in which informal assessment procedures directly linked to curriculum competencies are implemented by a variety of personnel who provide vocational and special services to special education students (Albright & Cobb, 1988). CBVA is a concept which can be integrated into community colleges, and job training programs in addition to school systems. At present, a role for vocational evaluators in the process is not identified. Evaluators have particular expertise in the development of checklists, observation rating forms and other vocational assessment instrumentation. This expertise in conjunction with that of curriculum experts would result in a highly effective CBVA process. Evaluators also can provide training to educators responsible for CBVA implementation on observation and related assessment techniques. Thus, evaluators require negotiation skills to convince educators of their potential contribution to the process. Collaboration skills are needed to maintain effective working relationships with teachers, administrators, curriculum specialist and other school personnel throughout the development and implementation of the CBVA process.

Technology has had a significant impact on assessment services. Computerized aptitude assessments which provide a quick and easy screening are being used in an increasing number of assessment settings. These are not appropriate for all populations and, thus, require careful selection and interpretation. Evaluators must convey the limitations of these tools to counselors and other referral sources to insure that misinterpretation or over interpretation of the results does not occur. Other technological advances such as computerized reporting and job search programs contribute to quality time-efficient services. These advances make keyboarding and computer literacy necessary skills for evaluators.

Another change in service delivery is short term assessment. This model was developed in response to increased emphasis on quantity and cost effectiveness. Short term services are appropriate for many individuals, yet inappropriate for individuals with more intensive needs. Evaluators must use care in selecting services as it inefficient to provide a comprehensive evaluations for individuals who need only short term services and ineffective to apply short term assessment to all individuals. The ability to make such distinctions in service delivery relies on the vocational evaluator's communication and problem solving capabilities in dealing with counselors and other referral sources.

Changing Outcomes

To keep services relevant, the field of vocational assessment must adapt its techniques to the range of employment and service opportunities available in the community.

In most areas of the country, employment in industrial manufacturing is declining and opportunities in areas such as communications and the service

industry are increasing. Many of our commercially available assessment tools do well at assessing skills for industrial, mechanical and business detail occupations, but provide little information related to potential for employment in other areas. Materials to assess abilities for jobs in professional or managerial areas are virtually nonexistent. The failure to keep pace with changing labor trends have resulted in less than optimal service delivery in many assessment settings. The evaluator ultimately is responsible for the quality of services and needs to provide guidance to commercial publishers and developers. Through advocacy, evaluators can encourage the development of appropriate vocational evaluation strategies and techniques.

The range of vocational service options has increased greatly in recent years as has the definition of who is employable. Supported employment has enabled many severely disabled individuals full participation in the work force. A few years ago, these individuals would have been served in sheltered workshops or day activity centers if they were served at all. In fact, many of these individuals who are now successfully employed were deemed ineligible for state vocational rehabilitation services due to the severity of their disability. The opportunities now available place increased emphasis on evaluator's abilities and skills in determining supports and accommodations to facilitate successful integration into the work force. Assessment outcomes which eliminate the potential for future participation in the work force are no longer acceptable.

As technology has changed assessment practices, it also has changed the employment alternatives available to individuals. Computers, adaptive devices and other technological advances, in part, have provided the means for individuals with severe physical or sensory disabilities to become employed. These adaptations range from relatively inexpensive adaptations such as a software program to enable an individual with one hand to press several keys on the keyboard in sequence rather than simultaneously to expensive devices to enlarge print on the video display terminal or provide voice output for individuals with visual impairments. Evaluators must keep pace with these important innovations so that their lack of awareness does not pose barriers to their client's future. Rehabilitation technologists and engineers will require consultation to ensure that all potential options are explored for individual clients.

The Changing Role of the Practitioner

It is impossible for practitioners to remain untouched by these fundamental changes. A reexamination of our traditional role, the competencies and qualifications of professionals, and the status of our field has become increasingly critical.

The role of the evaluator always has been a complex one. Hundreds of competencies were identified for practitioners in the late 1970's (Coffey, 1978; Sink, Porter, Rubin, & Painter, 1979) most, if not all of which are applicable today. Many of these competencies cross occupational lines and relate to the skills required of rehabilitation counselors, occupational therapists, job placement specialists, special educators, vocational educators and career development specialists. Due to the crossover of skills, it always has been necessary for evaluators to demonstrate how their role was unique. Evaluators did so by emphasizing the tools and techniques they utilized. At present, many of these techniques are out-dated in view of the present changes in populations, services and potential outcomes. Evaluators are unique because of their knowledge and expertise not the tools, techniques, or process they utilize. Evaluators are knowledgable about work and expert in analyzing, synthesizing and interpreting information related to work and persons with vocational handicaps.

In many instances, supported employment and curriculum based vocational assessment personnel do not see a role for the vocational evaluator in their service models because the techniques which have been used traditionally do not meet their needs. This narrow view of the role of the vocational evaluator, if not promoted by the profession, certainly has not been refuted by it. By not attempting to change restrictive views of the evaluator's role, the profession is viewed as not keeping pace with change and is in effect threatening its own existence. It is essential for vocational evaluators to take a broader view of their profession and to acquire new skills (e.g. negotiation) which will make them valuable players in markets

which presently do not see the benefit of their contributions.

The Evaluator as an Appraisal Generalist

According to forecaster John Naisbitt, "We are moving from the specialist who is soon obsolete to the generalist who can adapt." (1982, p.32) In vocational assessment, adaptation to changes in population, services and outcomes is essential for the profession to survive. The vocational evaluator must both view and market himself/herself as a generalist in order to be perceived likewise by other professionals. By so doing, the evaluator stands more of a chance in retaining a place in overall service spectrum.

Vocational evaluators, as appraisal generalists, are individuals who analyze, synthesize and interpret information in relation to vocational outcomes. They develop approaches to measure vocational potential and work cooperatively with other professionals to provide integrated service delivery. It is the ability to utilize the information and expertise of other professionals and to cooperatively provide services that has been most overlooked by vocational evaluation professionals. These skills and competencies are not new. They do take on increased importance today than in previous years.

Professional Contacts/Resource Utilization

Sink, et. al. (1979) identified a number of competencies under the topic of essential resource utilization which due to present changes in the field deserve increased emphasis at this time:

- o "Can establish inter/intra professional contacts with individuals and agencies" (p.38)
- o "Can demonstrate "where to start" in acquiring information or materials.." (p.38) and
- o "Can use community services and resources in meeting problems...and maintain an effective relationships with each" (p.39)

Although these competencies were important at their inception, they have become fundamental in enabling evaluators to meet the increasingly complex demands of their role. As evaluators move into situations in which traditional models of assessment are no longer optimal, skills in communication, collaboration and negotiation become increasingly important.

More recently, these skills have been emphasized by the proposed Code of Ethics of the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES) (Thomas, 1989). Tenet 4 of this document states that "Inter-professional cooperative relationships shall be seen as vital in achieving optimum benefits for clients. Professionals shall respect the value and roles of professionals and staff in other disciplines and act with integrity in their relationships with professional colleagues, organizations, agencies, referral sources and related disciplines." A principle which is highlighted under Tenet 4 is that "Professionals will actively seek other professional assistance or support in providing the best services for clients." To accomplish this, vocational evaluators must seek the input of other professionals both related to the resolution of specific cases and to develop appropriate and effective programs and services.

Consultation Related to Specific Cases

Evaluators have traditionally collaborated with other professionals related to specific individuals they assessed. In the interdisciplinary team approach, cooperation and collaboration was essential for the development of a rehabilitation plan. Generally, the expertise and involvement of other professionals was requested at the time recommendations were developed or at the time of the post-evaluation staffing. The present need for collaboration and information acquisition extends beyond the interdisciplinary approach and involves consultation prior to, during the assessment process and at the time recommendations are made.

With the range of services available to individuals with severe disabilities, information, in addition to that which is obtained through the interview and assessment, is required. Contacts such as parents, teachers, group home supervisors and other individuals can provide information essential in determining the appropriateness of specific program alternatives. Involvement of these individuals in the assessment process greatly enhances the utilization of recommendations and consequently the

success of the individual who is served.

Evaluators must develop contacts for acquiring information on technological adaptations and job modifications for individuals with severe physical or sensory disabilities. If possible, these devices or techniques should be utilized during the assessment process to improve the validity of recommendations.

Evaluators need constantly to update information from community programs and services. Visits to these programs can be invaluable in determining which individuals are best able to benefit from the services which are offered. Ongoing contact with program staff will enable the evaluator to keep informed of program and staff additions and changes.

Consultation for Program Development

The area of program development is one in which evaluators traditionally have not relied much upon the expertise of other professionals. With changes in populations, services and outcomes, many of our present assessment programs require remodeling. The expertise of other professionals in this process can be highly advantageous.

Assessment Materials Development. The development of worksamples is one of the traditional ways evaluators have relied upon the expertise of other professionals in program development. Evaluators have gone to business and industry professionals or vocational instructors and developed tools to assess job specific skills. The range of assessment materials to be developed in the wake of the significant changes in the field extends well beyond that of the worksample and requires the collaboration of many professionals. Skills checklists, behavior rating forms and other materials must be developed for specific application in CBVA, community based assessment, and other assessment models.

Updated labor market information aids vocational evaluators in choosing from available assessments those which will determine an individual's appropriateness for particular employment or training opportunities. This information also can guide the development of informal criterion referenced materials geared specifically to job demands. For example, a task requiring the computation of elapsed time is developed for a clerical position in which an individual must process the time cards of hourly employees. Consultation with vocational instructors can aid evaluators in determining the level of reading materials used in vocational training programs. For instance, functional assessments of reading comprehension using material from the actual course texts can enable an evaluator to better determine if an individual will be successful in meeting the demands of a particular area of study.

Making Current Materials More Measurable and Meaningful. Another use of professional contacts is that of selecting, modifying or supplementing the assessment materials currently utilized by the vocational evaluator.

Evaluators can rely on vocational instructors and employers to select among the available assessment tools those which accurately identify skills which are utilized in their vocational area. The modification of assessment tools and material to better represent particular vocational areas or job skills should be accomplished with their input as well.

Evaluators can enhance their program by making physical measures more objective. Tools which are designed to assess physical capacities are, by nature, physically demanding on the evaluee yet evaluators have done little to determine levels of exertion or potential health risk. Physical and occupational therapists as well as nurses can provide evaluators with much needed guidance in this area. Some examples of ways these professionals have aided in program development are: the use of a cardiac screening checklist to determine potential health risk prior to the administration of a physically demanding assessment, pulse rate and blood pressure measurements taking before during and after a physically demanding assessment and the use of a volumeter to objectively measure edema.

Assessment Environment. Increasingly, evaluators will find themselves working in classrooms, businesses and industry, community based programs as well as other non-traditional settings. A flexible approach as well as the identification and utilization of available professional resources is necessary to meet the demands of these new environments.

Evaluators who continue to work in unit-based settings can rely on professionals from business and industry

to assist in the lay out and design of their facility. These professionals can enhance the overall appearance of the unit making it more closely approximate the standards found within the community.

Occupational therapists, ergonomic specialists, and industrial psychologists can provides suggestions on layout, lighting, table and chair height, and work posturing. Input from these professionals will not only make the environment safer, but may improve the performances of the individuals assessed.

Areas Addressed by Program. Local labor market information should guide the overall service delivery of the assessment program. It is of little use to have high quality assessment tools and materials if they do not assess the skills required for the employment opportunities which are available locally. Job placement specialists, personnel from state and local employment agencies, members of the chamber of commerce, and occupational statisticians can aid the vocational evaluator in tailoring assessment services to local opportunities. By consulting such experts, recommendations can be specific and up-to-date.

Conclusions

The utilization of professional contacts and resources in vocational assessment has become increasingly critical given the changes in populations, services and outcomes. Vocational evaluators must utilize any and all professional resources available to them to improve the quality of their vocational assessment programs and the outcomes for the individuals who are served.

The barriers which traditional vocational assessment techniques have posed to their profession and their professionalism must continue to be removed by vocational evaluators. Marketing efforts must emphasize general skills of the vocational evaluator as well as their ability to successfully integrate assessment techniques into a variety of programs and settings.

The significant changes in the field imply increased emphasis on the development of communication, collaboration, and negotiation skills. In addition to including these within their Code of Ethics, CCWAVES should incorporate these critical skills into the Essential Knowledge and Performance Areas. Professional training opportunities, both degree and non-degree, which have not addressed these areas must do so in the future. Future training also must emphasize the acquisition of general vocational appraisal skills and the application of these skills to a variety of services, populations and settings. These approaches will enable professionals to better meet the demands of their changing role than the present emphasis on the acquisition of technical skills required to employ traditional tools and techniques in vocational assessment.

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VOCATIONAL EVALUATORS AND THE LAW

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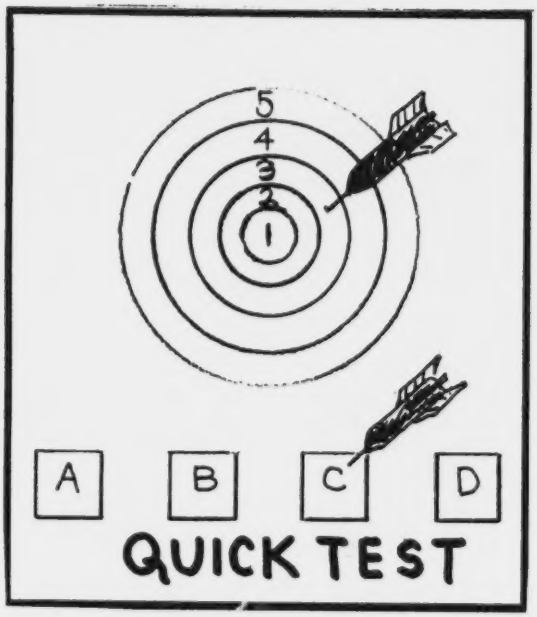
ABSTRACT:

VOCATIONAL EVALUATORS AND THE LAW

In the ever expanding world of testing and the laws which regulate it, and in this age of "easy" suing, it is imperative that evaluators and counselors be cognizant of their liability as it relates to testing and resulting recommendations. Attorneys are beginning to do their homework on vocational evaluation and the instruments used, and it is not uncommon for the attorneys to subpoena copies of the manuals accompanying the tests and/or hire trial preparation experts in the field of vocational evaluation to arm the attorney with information for attacking weaknesses in the vocational evaluation system or procedures used.

The Federal government has implemented many laws and regulations which are interpreted by the courts to insure that the rights are not violated. On the other hand, Workmen's Compensation and Insurance agents/attorneys are just as adamant about guarding the integrity of their due process for disability payments. Thus, when evaluators appear in court for expert testimony, they are often asked of their vocational evaluations, "Are the instruments that you use in conducting your vocational evaluation the most credible and the most valid on the market today? ". If vocational evaluators are to maintain their integrity and that of the profession, they must be able to respond affirmatively.

This presentation will deal with actual cases, Federal laws, and interpretations of the courts. Example of materials will be seen and audience participation will be encouraged. The audience should leave with a better understanding of testing and responsibility as they relate to the manufacturer, the user, and the professional organization.



IT'S QUICK AND EASY TO ADMINISTER

BUT IS IT LEGAL? ? ? ? ? ? ? ? ?

Testing has become an integral part in today's counseling process. The process utilizes the results of tests to help in the formulation of a plan for the client. This plan, report, recommendation, or what ever else one wishes to call it can alter a person's life and thus there are ground rules established by the Federal Government to protect the evaluee. These rules are called Laws, regulations or guidelines which appear in the Federal Register, the Code of Federal Regulations, and other publications.

Unfortunately they tend to be primarily read and acknowledged by attorneys and advocate groups representing a client's interest. The "head in the sand" syndrome seems to have found some disciples in the testing community. If I ignore it maybe it won't affect me. Unfortunately for them attorneys are a tenacious group who will seek out those who have violated the rights of their

clients. The scales of justice tilt in their favor whenever the acts are committed which fly in the face of established law. Ignorance of the law is no excuse. For lack of a better description I will refer to these "head in the sand" individuals as "Easywayers". An Easywayer is an individual who always looks for the fastest and easiest method of testing even if it may be in violation of established regulations. The Easywayer usually doesn't read the manufacturers limitation of use for various populations or cautions because that's not the easy way. The Easywayer normally will ask a marketer of a test these questions: "How long does it take to administer?, how easy is it to administer? and not: "how valid is it?, how reliable is it? is it appropriate for my clients? and most importantly does it conform to Federal guidelines and not violate established law.

Title VII of the Civil Rights Act of 1964 was the first major Act that impacted on the issue of ability testing. This act also established the EEOC or Equal Employment Opportunity Commission, followed by several Executive orders and EEOC guideline publications, 1966, 68, 69, 70, 71 and finally the Uniform Guidelines published in 1978. Most of these regulations are published as 29 U. S. C. and 42 U. S. C. These guidelines essentially addressed the area of employment discrimination. The 1970 EEOC guidelines described discrimination as "The use of any test which adversely affects hiring, promotion, transfer or any other employment or membership opportunity of classes protected by Title VII constitutes discrimination unless: (a) the test has been validated and evidences a high degree of utility as here in after described, and (b) the person giving or acting upon the results of the particular test can demonstrate that alternate suitable hiring, transfer or promotion procedures are unavailable for his use".

In 1971 the Supreme Court's opinion in the landmark case of Griggs v. Duke Power Co., 401 U.S. 424 established that when an

assessment instrument is used in the job selection process that it must be job related. The precedents established by this case have been used to substantiate testing abuse or misuse in areas other than employment screening.

Several other Acts such as Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973 and the Education for All Handicapped Children Act of 1975(referred to as P.L. 94-142) and implementing regulations in August 1977 addressed most other areas of test use .One interesting facet of law is the ongoing interpretations of existing law which expand or broaden the coverage. Both Section 504 and P.L. 94-142 contain a requirement that handicapped persons be provided with" a free appropriate public education", which has been interpreted to include evaluation and placement. Section 84. 35 of subpart D"establishes placement procedures described in the section-by-section analysis as "designed to ensure that children are not misclassified, unnecessarily labeled as being handicapped or incorrectly placed because of inappropriate selection, administration or interpretation of evaluation materials". Title 45, Subtitle A, Part 84-Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving and Benefiting from Federal Financial Assistance, Federal Register, Vol 42, 86-Wednesday, May 4, 1977.

84, 42 Admissions and recruitment which states that a test"Shall assure itself that (1) admissions tests are selected and administered so as to best ensure that when a test is administered to an applicant who has a handicap that impairs sensory, manual, or speaking skills, the test results accurately reflect that applicant's aptitude or achievement level or whatever other factor the test purports to measure, rather than reflecting the applicant's impaired sensory, manual or speaking skills(except where those skills are the factors that the test purports to measure)".

I am sure that Ceaser did not say this but, "The rules are in place ,so let the suits begin! "

On January 3, 1983, the United States Court of Appeals found that the TVA authority had violated the rights of Joseph Stutts,Jr. in Stutts v. Freeman,694F. 2d 666(1983). Mr Stutts was required to take the GATB which includes the requirement for reading even though he suffered from Dyslexia. The court found"When employer chooses tests that discriminate against handicapped persons as its sole hiring criterion and makes no meaningful accommodation for handicapped applicant, it violates Rehabilitation Act. "During the trial"Both parties agree tnat Mr. Stutts is a handicapped individual and that the main hiring criteria -the GATB test-could not accurately reflect Mr. Stutts' abilities". Mr Stutts worked for the TVA as a laborer and applied in 1979 for an apprenticeship training program to become a heavy equipment operator. "His application was denied on the basis of a low score on the General Aptitude Test Battery(GATB), a test used by the TVA to predict the probability of success of an applicant in the training program".

One could hypothesize further interpretations that would involve possible findings of discrimination in testing even to non-handicapped people when the test instrument incorporates as part of it scoring mechanism motions or responses totally unrelated to the factor being measured which in itself could effect the true performance of the client. Another area of potential discrimination might involve data bases for placement which limit the individual clients' choices not on their performances but by the limitation within the data base. Interpretations tend to include items or classes not explicitly mentioned.

A recent landmark decision involved Watson v. Fort Worth Bank and Trust,108S. Ct. 2777(1988). Here the Supreme Court held that subjective assessment had the same requirement of being "Job Related" when used in the selection process as objective . The Griggs case was cited "Griggs teaches that employment practices"fair" in form, but discriminatory in operation" cannot be tolerated under Title VII,401 U. S. ,. 401 at 431,91

S. Ct. at 853. "This lesson should not be forgotten simply because the "fair form" is a subjective one". Subjective and objective assessment must meet the letter of the law.

Easywayer beware, there are concerned parties looking over your shoulders The National Center for Fair & Open Testing(FairTest) in Cambridge,Mass. is one such group which is working with attorneys in Washington D. C. to oversee the Testing Industry. The process for questioning decisions based on test results is also in place in many states.

In New York, the LaValle law"is not concerned just with the rights of test takers to information about the test,it is also intended to provide an external spur to quality assurance by allowing a test taker to judge the quality of tests used to make decisions about his or her life,what is required is that a test be as advertised and sold. . . . . Many court actions with regard to testing thus far have been brought against test users for alleged misuse. . . . . the liability for quality of test lies with the test user rather than the test producer,for it depends on the particular use to which a test is put,a test may be valid in one circumstance but not in another.". pg228,229,Ability Testing,Uses,Consequences, and Controversies. The Easywayer can't keep their head in the sand much longer before the courts cover them entirely.

Many people within the testing community are sometimes called upon as expert witnesses. Some of these experts fail to use the resources that are available . The uninformed expert might assume a liability if he or she fails to keep up in their chosen field and it impacts on their client. The law libraries hold a wealth of information ,and yet experts go into the courtroom without researching cases relevant to their client.

Let us look at 5 cases all with the same mistake in knowledge.

Blake v. Secretary of Health & Human Services,528 F. Supp,881(1981)

Weaver v. Secretary of Health &

Human Services,722 F2d310(1983) Wallace v. Secretary of Health & Human Services,586,F2dSupp,395(1984) Ellington v. Secretary of Health & Human Services,738 F2d 159(1984) and Podeworm v. Harris 745,2d210(1984) where in each case the expert witness listed aptitudes as a transferable skill even though the courts had given a decision on this in the earlier 1981 case. "skill is acquired and relates to doing a specific act,and isn't the same as an "aptitude" which involves only basic work activities, necessary to do most jobs". Blake v. Secretary of Health & Human services. 528 F. Supp881(1981).

It's time that the test producers,users and takers become more aware of the existing laws to protect their interests. PESCO International recognizes it's obligation and has prepared this material to be of service to the testing community.

We accept the responsibility that comes with the design of our systems and realize the importance of "Accuracy". Compute-A-Match which consists of S. A. G. E,J. O. B. S. ,and AUTO-SCORE will never be modified just to fit a "TIME FRAME". Time should be used for the benefit of the Counseling Process and not to the detriment of it. Voice your concerns to PESCO International and we will listen. You are not a percentage in sales,but a professional with views we respect and value.

Ethics in Vocational Evaluation: A Foundation for Future Study

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Abstract

The purpose of this paper is to present an overview of current and emerging ethical and professional issues in vocational evaluation. The paper will begin with a review of the VEWAA Code of Ethics (i.e., responsibility, professional competence, confidentiality, interprofessional relationships, publications, and consultation). In addition, specific ethical dilemmas will be examined that are related to work disincentives, the use of psychological tests, program evaluation length, and the role of the client/consumer in the evaluation process. The paper will conclude with a discussion of the need to establish more definitive guidelines for determining ethical behavior in vocational evaluation.

In order for a society to work, individual members must be willing to adhere to specific rules which regulate the actions of the group. According to the late singer, Jim Croce, the rules for a certain pool room on 42nd Street were to avoid the following situations: (a) sitting on Superman's cape, (b) spitting into the wind, (c) removing the Lone Ranger's mask, and (d) messing with someone named Jim. Unfortunately, most societal rules are not that simplistic and direct, instead they are vague and subject to numerous and varied interpretations. For instance, when we were young our parents admonished us to not lie, but as we got older and became more sophisticated with the ways of society, we learned that it was OK to tell lies if in doing so we avoided hurting another person's feelings.

Over the years we have have also been taught, among other things, to avoid doing harm, to give assistance when possible, and to respect the rights of others. We know that we are expected to respect and adhere to the edicts, laws and mandates of our government. Our parents and other relatives have instilled certain values, tenets, and beliefs in us. Finally our neighbors, friends, employers, co-workers and other associates impact on the rules that govern our behavior. We can even learn superstitious beliefs from the two year old next door who admonishes us to avoid stepping on cracks lest we break our mothers' backs. In other words, our behavior is being regulated at all times, either consciously or unconsciously, by the specific rules, laws, mandates, tenets, edicts, and values which enable us to determine if our actions are ethically and morally correct.

Kitchener (1984) classifies moral thinking into two levels: (a) intuitive thinking which relies on past teachings and is partially composed of the "oughts" and "ought nots" we were taught as children, and (b) critical-evaluative thinking which involves the act of making judgements based on reason and evaluation. Intuitive decisions are made instinctively, while critical-evaluative decisions involve much thought before a judgement is made. Professional organizations establish Codes of Ethics to provide members with intuitive rules, also known as the "oughts" and "ought-nots". Most Codes of Ethics, however, are so vaguely written that interpretation requires much critical-evaluative thought. Unfortunately for the practitioner faced with an ethical dilemma which must be resolved immediately, little assistance can be found in these vaguely written guidelines. Codes of ethics were developed by several professional rehabilitation associations between the years of 1970 and 1981 (Cottone, Simmons, & Wilfley, 1983). The establishment of such codes was an essential component of attaining professional status for various disciplines within the generic field of rehabilitation. The term "ethics" is usually thought of as a way of discerning not only what is good and bad, but also moral duty and obligation. Both Nadolsky (1986) and Stude and McKelvey (1979) allude to the power of the ethical standards of a discipline or profession to regulate member's behavior.

According to Kitchener (1984) there are three reasons which explain the importance of ethical codes of conduct: (a) the promotion of professional loyalty and trust , (b) the provision of standards by which one actions can be justified as morally correct, and (c) the establishment of disciplinary actions for members who do not adhere to the rules of the group. It should be noted, however, that

Kitchener (1984) also reports that "ethical codes are frequently more protective of the profession itself than of the consumer and omit many issues of ethical concern" (p. 45). The Vocational Evaluation and Work Adjustment Association (VEWAA) and the Commission for the Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES) are the organizations responsible for creating the code of ethics and certification procedures, respectively, for vocational evaluators and work adjustment specialists. VEWAA and CCWAVES are separate organizations, however, both recently began examining the ethical codes and standards of behavior established by the respective organizations. One result of these reviews has been a commitment to the revision of the ethical standards of both organizations.

The Vocational Evaluation and Work Adjustment Association was incorporated in 1972. Within the Articles of Incorporation is a statement addressing the need for "promoting the highest ethical practices in vocational evaluation and work adjustment training of the handicapped" (Articles of Incorporation, VEWAA, 1978, p. 7). The Vocational Evaluation and Work Adjustment Association's Code of Ethics was adopted in 1970 (Cottone, Simmons, & Wilfley, 1983). Adherence to this code is required of all VEWAA members. The six areas of concern which are addressed in this document are: responsibility, professional competence, confidentiality, interprofessional relationships, publications, and consultation. Responsibility charges the evaluator with the task of being primarily accountable to the client being served, with the expectation and encouragement of ethical and competent behavior to other vocational evaluators, and with the responsibility of reporting unethical behavior to the proper authorities within VEWAA. Professional competence requires practitioners to have gained through educational and vocational experiences the competencies needed to fulfill the requirements of vocational evaluation, to be capable of understanding and interpreting acquired information to clients, to possess an working knowledge of the world of work, and to be familiar with human behavior studies. Confidentiality insures privacy to individuals receiving vocational evaluation services. Only persons named in a written format by the client receiving services are to be given access to information concerning the client. Client information stripped of identifying information can be used for the purposes of training students conducting research, or writing, but only if consent is granted by the client. Interprofessional relationships guarantee that the vocational evaluator is aware of the valuable assistance provided by other professionals. The primary concern focuses upon the client and frequently a variety of programs provided by a variety of agencies is needed in order to provide comprehensive services. Evaluators are to be aware of individual limitations, and not profess expertise in unfamiliar areas. Through the act of publishing, valuable information is transmitted to other practitioners and is assimilated into the existing fund of knowledge of the profession. The provision of consultation services is granted to vocational evaluators, but only in areas of acknowledged expertise. Knowledge gained in private ventures is also subject to confidentiality restrictions.

Even though a professional code of ethics has been established by VEWAA and each member is provided with a copy of the Code, this topic continues to be of such concern to practitioners of this professional organization. A survey of the membership of the Illinois Vocational Evaluation and Work Adjustment Association (IVEWAA) in 1987 revealed a demand for information concerning ethical conduct expected of vocational evaluators and work adjustment specialists. One of the reasons cited for this continuing demand concerns the belief that an established code of ethics is more than a set of principles under which professionals operate on a daily basis. "A code of ethics goes beyond the mind and body of a discipline (i.e., its knowledge base and techniques), and attempts to provide a **conscience** for the discipline and its practitioners by focusing on the discipline's underlying purpose" (Nadolsky, 1986, p. 7). Another reason, cited in requests for training sessions dealing with ethical issues, is the lack of published information concerning the topic. "Because ethical codes may be too broad in some cases and too narrow in others, ethical principles both provide a more consistent framework within which cases may be considered and constitute a rationale for the choice of items in the code itself" (Kitchener, 1984, p. 46).

During their research of articles addressing ethical topics in the fields of vocational evaluation and work adjustment, Cottone, Simmons and Wilfley (1983) found numerous articles on the need to establish a code of ethics, but very few addressing specific ethical dilemmas. The topics that have been addressed in vocational evaluation concern such areas as assessment instruments and techniques (Matkin, 1980), program length (Wahl, 1983), use of quotas (Mades, 1986), and the need to examine specific ethical dilemmas (Early, 1987). A final reason relates to the future of human service professions, such as vocational evaluation and work adjustment. Practitioners, especially trainers, are obligated to indoctrinate students and interns to the concepts of ethical behavior as practiced by the profession. Specifically, persons "who are involved in training have as strong an obligation to train students in the potentials for harm that may result from assessment and diagnosis as they do to train students in the appropriate use of these same instruments and labels" (Kitchener, 1984, p. 49).

The issues of ethical behavior and competence are mentioned several times in the VEWAA Code of Ethics. The advent of CCWAVES and the certification process for vocational evaluation and work adjustment specialists have established guidelines indicating minimum competencies for practitioners in both fields. However, the term "ethical behavior" has not been defined in such a manner by either group. At the present, the act of defining the term has been primarily left up to the individual practitioner. In other words, each individual practitioner has to develop his or her own set of standards. This practice would be adequate if all persons had identical value systems, but, since this is not the case, solutions to ethical dilemmas are presently personalized and reflect the ideology of the person making the decision. Nadolsky alluded to this fact in an editorial published in 1986 with the statement, "although all members of a professional rehabilitation organization are expected to ascribe to the organization's Code of Ethics, many members engage in "professional" activities that seem to be derived more so from a set of **personal** standards (which are external to the purpose of their discipline) than from the discipline's code of ethics" (Nadolsky, 1986, p. 7).

According to Rubin and Roessler (1986) "ethical dilemmas exist when strong moral reasons can be provided to support very different conclusions in regard to the selection of the most appropriate action" (p. 11). Arguments can simultaneously be made both for and against an issue. Sources of ethical dilemmas can be found almost anywhere at anytime. There are four major sources of ethical dilemmas for vocational evaluators: (a) the vocational evaluator's responsibility to the clients, consumers, educators, and family members, (b) the vocational evaluator's responsibility to the facility management, supervisors, (c) the vocational evaluator's responsibility to the community at large including employers, the profession of vocational evaluation, and tax payers, and (d) the vocational evaluator's responsibility to

the referral source which can include state agencies, insurance carriers or service/bill payers. One illustration of an ethical dilemma within an education setting would revolve around the duty of educators (trainers) to not only instill in students the proper way to perform certain duties, but also to teach the ethical manner in which these duties are to be completed. Another example that is more general would be finding money on the street. Most persons would not feel uncomfortable keeping a $100 bill found on a street corner; however, they may possibly have problems justifying to themselves keeping the money if it is found in a wallet. Furthermore, if the wallet happens to contain identification of its owner, the finder may realize even more of an impetus to return the wallet intact to its rightful owner. Another illustration of this point concerns rescuing persons from a burning building. Most persons would not require much though about rushing into a burning building if a child could be safely rescued by doing so. However, most persons would probably hesitate if it was Ted Bundy who was inside the building and needing rescue. These illustrations prove that ethical decisionmaking is not an easy task and it will be necessary to explore ethical dilemmas commonly experienced by vocational evaluators through an individual case by case, person by person approach. According to Kitchener (1984) there are five guiding principals to use when resolving ethical dilemmas: (a) autonomy or making one's own decisions and respecting the autonomy of others (i.e., privacy rights, informed consent), (b) fidelity or loyalty being faithful, and keeping promises (i.e., voluntary relationships, trust, confidentiality, contractual obligations), (c) justice or treating everyone equally if they are equals and treating unequals differently if the inequity is relevant to the problem (i.e., ability to pay, equality of merit or effort), (d) nonmaleficence or avoiding causing harm (either intentional or potential) to others (i.e., research, misusing tests, justifiable discomfort from treatment or medication, labelling), and (e) beneficience or doing good for others (i.e., paternalism, right to chose to not participate, balancing harm with good).

It is hoped that this paper might serve to generate further discussion of the topic of ethical behavior in vocational evaluation and work adjustment settings, and ultimately lead to the establishment of guidelines outlining ethical standards for students, educators and practitioners in the areas of vocational evaluation and work adjustment. Ethical issues related to client disincentives, financial or budgetary disincentives, conflicts of interest, test modifications, test purposes, using the same test to assess all clients, training, and quotas and program length will be discussed in the following sections.

Client Disincentives

One example of an ethical dilemma which vocational evaluators often face is described in the following scenario. A client is referred for vocational evaluation services in order to determine feasible vocational goals and objectives. The individual is married and has two children ages 2 and 4. The four year old, born with a defective heart, has required numerous hospitalizations in the past, and will continue to receive close medical monitoring in the future. While on a family vacation one year, the client fell off a truck and suffered a closed head injury which is manifested by occasional severe mood swings. After the injury, employment was terminated and the client has not worked in the last five years. The wife does not work outside the home because of the family's religious beliefs. Total income for the family amounts to a monthly check from Social Security of $575.00, including Medicaid coverage. The individual quit school after the eighth grade in order to help support his family. A recent administration of the Wechsler Adult Intelligence Scale-Revised rendered a full scale intelligence quotient of 86. Feasible employment options are determined for this client, however, the starting salary for any job will be minimum wage. Therefore, if the client finds and accepts employment, not only would the family's monthly income drop, but the Medicaid coverage would be lost. The monthly premium for medical coverage for a family of four is approximately $120.00 per month. Disincentives resulting in a reluctance to return to work include the loss of cash benefits, benefits in kind, Medicare/Medicaid, or eligibility for particular service programs. "However, these benefits will not be lost if the client simply attains a higher degree of independent living skills" (Berkowitz, 1980, p. 42).

In a situation such as the one described above what should an evaluator do? Should he or she recommend the identified employment options, knowing full well that the family would suffer financially from the consequences of such a decision? Would it be ethical to advise the man to stay on Social Security and, thus, at least maintain the minimal financial security now enjoyed by the family? According to the definition provided by the Tenth Institute on Rehabilitation Services (1972) the purpose of vocational evaluation is to provide vocational development assistance to individual clients. Would an evaluator who advised the client to remain on Social Security be violating the VEWAA Code of Ethics? The Code states that the individual client being served is the primary focus of vocational evaluation. By addressing the total client needs, the individual described above would suffer hardship if he became employed. Would an evaluator be remiss in recommending non-vocational goals?

Financial or Budgetary Disincentives

The 1986 Amendments to the 1973 Rehabilitation Act mandate that rehabilitation agencies serve persons with severe disabilities. Although funding for such programs has increased over the years, the actual number of dollars allotted to serving persons with severe disabilities remains far below what is actually needed by service providers. Furthermore, this inadequate funding situation has also resulted in low, non-competitive salaries, and has forced rehabilitation agencies to consider and employ persons of less skill and education to fill staff positions.

School systems must directly or indirectly provide appropriate educational services to all children as mandated by the Education for All Handicapped Children Act (Public Law 94-142) (Langan, 1988). This law does not address how the money for such programs is to be appropriated and assumes that adequate tax bases exist for the addition of these specialized services. In addition, PL 94-142 addresses neither the fact that possibly few persons within any given school system will require a specific service nor the availability of qualified service providers within a school district. In other words, vocational evaluators working within school systems, as well as rehabilitation facilities, will have to balance student/client needs with the budgetary limits of the school or facility.

Conflicts of Interest

Lawyers, psychologists, doctors, educators, and other professionals cite that their primary responsibility if to their clients, patients, students, in other words, the consumers of their services. Although not publicly admitted, these professionals are also obligated to serve the wishes of the administrators of their law firms, clinics, hospitals, schools, or place of employment. The balancing

of responsibility to both client and place of employment can only be resolved by going into private practice and in effect becoming one's own boss.

The Ethics Committee of the Vocational Evaluation and Work Adjustment Association has developed a Conflict of Interest statement for the leaders of the organization. However, the assignment of primary responsibility to either client or place of employment remains a personal decision for vocational evaluators at this time.

Test Modifications

The example above is one that evaluators may or may not have to deal with during their careers but there are other ethical dilemmas which are faced by vocational evaluators on a daily basis. Students of evaluation receive classroom instruction and practical experience in evaluation planning, test selection, administration, and interpretation, and are taught to always follow the standardized directions in totality and to never utilize a test instrument for anything other than its original intent. In practice, it would be extremely tempting to ignore some of the standardized instructions especially when working with several clients doing different things at one time. It is common knowledge that non-adherence to the published format can seriously affect not only the outcome of the test but also the ability to relate scores to the standardized norms provided in the manual. However, when faced with several clients who are all demanding something to do at one time, the shortening of lengthy and detailed instructions would enable the evaluator to more quickly meet the individual demands of each client. It is also possible that some clients will not sit through all the instructions and will begin to look through the actual test materials. Adherence to standardized procedure may only serve to frustrate some clients which in turn could negatively affect their test scores. Improvising test instructions could also be a temptation when the evaluator is interrupted during an intense counseling session or is conducting behavioral observations on another client. What should evaluators do in situations such as those listed above? Would it be ethical to alter the standardized directions on such things as completing the information requested at the top of the scoring sheet, such as school, teacher, last grade attended, etc.? Are there cases when it is ethical to revise test instructions? In addition, if strict adherence to the belief that administering a test in any way that deviates from the standardized format is unethical, then can non-standardized test modifications be justified? Is it ethical to read a test to clients who are visually impaired or otherwise unable to read it for themselves? Is it the ethical duty of evaluators to administer timed examinations to persons who are unable to write quickly? Is the practice of using written instructions with persons who have auditory memory problems unethical? Is it wrong to convert tests into larger print for those with visual impairments? Non-improvisation of test directions is something which cannot possibly be regulated, therefore it must be the ethical responsibility of each individual vocational evaluator to follow this practice. APA standards require practitioners to either follow standardized procedures or to consider the test results invalid; however, the American Psychological Association's position is frequently ignored in vocational evaluation, primarily due to the overall goal of vocational rehabilitation which is to maximize potential of clients. Matkin (1980) has pointed out that although vocational evaluators need to be knowledgeable about assessment devices, "little in the way of specific information is provided the professional in the area of ethical usage of the very tools of his/her trade, i.e., assessment instruments and techniques" (p. 57).

Test Purposes

Students are also taught that the ethical vocational evaluator should use a test for its intended purpose only. The reason for this rule can be found in numerous court cases addressing illegal hiring, personnel selection biases, and/or promoting practices of some employers (Matkin, 1980). However, is it always unethical to utilize a test for another purpose? For example, some work samples could be used (without recording or reporting norms) as simulated work stations to answer questions concerning client frustration level, interest, ability to concentrate for long periods of time, and physical stamina. Directions for several tasks could be chained together in order to determine a client's ability to remember and follow multiple step instructions. On-the-job evaluations (OJEs) or placement at a work station within a sheltered facility are the usual methods of obtaining work behavior observations, but in either situation the evaluator not only loses the ability to control the environment, but also must frequently depend upon others for behavior observations. In lieu of an OJE or workshop placement, a situational assessment could be completed provided that the evaluation room is capable of serving as a work room in addition to a testing room, and that enough raw materials can be brought into the area. However if the above options are not available, would it be ethical to use work samples in the manner described above to obtain the needed information?

Using the Same Test to Assess all Clients

Paper and pencil psychological tests are the least costly and least time consuming tools of vocational evaluation, therefore another ethical conflict within the field of vocational evaluation involves the use and overuse of testing. There is also a tendency in small evaluation units with limited financial resources to purchase an assortment of assessment tools and expect evaluators to administer all tests to every client. This battery is usually either one of the commercially available evaluation systems, or includes a brief academic assessment, an interest inventory, several dexterity tests and, possibly, a personality inventory. Many test and work sample companies go to great lengths to provide data proving that their product is suitable for use with various populations and provide statistical data in the test manual and promotional materials which confirm their assertions. However, provided the evaluator has the time and knowledge to do so, a closer examination of these publications may reveal inconsistencies between the actual data reported in the test manual and the subsequent interpretation of this data by the test author or publisher. One test does not fit all clients. In order to effectively assess individual clients, a variety of instruments must be available for evaluator use. The use of a variety of assessment measures meeting individual needs is another principle that is stressed to vocational evaluation students. But not only is the possibility of having only a few instruments available for use rarely discussed, guidance as to what an evaluator could do when confronted with this situation is also not provided.

Training

The use of a commercial system brings up another ethical dilemma for the practicing vocational evaluator. Several of these commercial systems require specific training prior to purchasing and using the system. What should beginning evaluators, who have not received this training, do when told to use the system? Should they insist on obtaining the training, or should they just plunge in and learn the system by trial and error, hoping that they make no major

mistakes in administration, scoring, and/or interpretation? The potential for errors on client results is increased when non-trained practitioners use assessment instruments which require specialized training.

A second dilemma within this area has been developed with the advent of CCWAVES and the certification process. At the present, CCWAVES requires applicants for certification to have attained at least a Master's degree. However, most rehabilitation facilities employing vocational evaluators require applicants to have a Bachelor's degree and some only require a high school diploma. The question becomes one of adequate representation. In other words, is the certifying body actually representing the majority of practitioners? Furthermore, does the certifying body wish to represent the majority of practicing vocational evaluators? Do non-certified vocational evaluators have a right to practice their profession? Should certification be mandated?

Quotas and Program Length

Matkin's (1980) warning that vocational evaluators be alert for the development of dependency upon assessment tools to provide the total picture of an individual's vocational assets and limitations ties in with two other ethical dilemmas that evaluators face on a daily basis: the use of quotas and program length. Performance appraisals (during annual salary and promotion reviews) are difficult for supervisors of vocational evaluators because of the subjective nature of the work. Often the only objective measure of performance is the number of clients served during a year. The problem with using a quantitative measure such as number of clients served is that, in the quest to serve a predetermined number of clients, it may become necessary for an evaluator to forego quality of service in order to obtain the needed quota of clients served. It is possible that the client can become more important as a statistic than as a person requiring assistance in determining a vocational goal. When quantity becomes more important than quality, dependency upon certain assessment instruments becomes apparent. Developers of tests, especially batteries and systems, augment the problem by insisting that their instrument can meet the needs of most clients. Again, we've come to the common practice of "one test fits all". Adherence to this philosophy can be related not only to the goal of providing services to a larger number of clients, but also to the administrative demand that service delivery to clients be completed in less time. In these days of shrinking budgets, balancing the needs of the facility with those of individual clients is an extremely difficult and delicate task. Mades (1986) offers one solution to the problem by asserting that governmental bodies should be approached with data showing how a reduction in quotas could be equated with improvement in the quality of service delivery for all clients. Wahl (1983) suggests that although lengthier evaluations may be more costly at the onset of services to an individual "if it produces a more positive, more substantial result, and leads to full rehabilitation of the client, the cost in the long run may prove to be less" (p. 83). However, results from a recent study suggest that expressed client satisfaction may decrease as a function of the length of time spent in a vocational evaluation program (Early & Bordieri, 1988).

Summary

Society is constantly changing. As the profession of vocational evaluation strives to meet the changing needs of our clientele, the old solutions and techniques become obsolete. Some other ethical service delivery dilemmas not addressed in this paper include the topics of client confidentiality and the temptation for practitioners to project their personal value hierarchy onto the client. In any ethical dilemma, the question of what course of action should be taken by the individual evaluator is extremely important. The term "ethical behavior", alluded to so frequently in the literature, needs to be more closely defined. Arras and Hunt (1983), however, warn that defining ethical behavior will not be an easy task. "Many see all ethical questions as relative to the attitudes and customs of the particular society in which they arise; that is, they believe that the rightness or wrongness of an action or practice cannot be determined apart from the cultural or societal context in which the action occurs" (Arras & Hunt, 1983, p. 6).

Ethical codes formed by professional organizations serve to govern the conduct of its membership and thereby fulfill one of the reasons advocated by Kitchener (1981) for having ethical codes of conduct which is promotion of professional loyalty and trust. Since most ethical codes, however, provide little in the way of specificity of behavior and are not enforceable, Kitchener's (1981) second reason which illustrates the importance of ethical codes, the provision of standards of acceptable behavior, remains unfulfilled. Kitchener's (1981) third reason, establishment of disiplinary actions has been attained by professional organizations such as the American Psychological Association and the American Medical Association. Both formal and informal disciplinary tactics are used to police members of professional organizations with established codes of ethics (Stude & McKelvey, 1979). While informal discipline is usually in the form of subtle pressure and discussions among professionals, formal discipline usually involves public censure, sanctions, or removal of credentials (either permanently or temporarily). As noted previously, several authors have alluded to the power of an organization's ethical code to police the professional conduct of its members (Nadolsky, 1986; Stude & McKelvey, 1979), however disciplinary measures for violaters of the VEWAA Code of Ethics remain unaddressed at the present time.

The VEWAA Code of Ethics can not be viewed as an all encompassing document (Nadolsky, 1986). The current VEWAA Code of Ethics addresses general philosophical principles but not specific issues or situations. The Ethics Committee established by VEWAA should not only provide assistance to members seeking answers to ethical dilemmas, but also review and, if necessary, revise the Code in order to ensure that professional guidance concerning ethical behavior is provided by the Association. A casebook, similar to those established by the American Medical Association and American Psychological Association, outlining ethical dilemmas and scenarios combined with interpretations of the situations and rulings on ethical behavior would prove extremely helpful not only to students of vocational evaluation, but also to educators and current practitioners. The sharing of solutions to ethical dilemmas through the professional publications such as the VEWAA Newsletter and Bulletin should be encouraged. It may also be advantageous for the Code as well as case studies and rulings to be published in the VEWAA Bulletin on a yearly basis.

Both the leadership and membership of the Vocational Evaluation and Work Adjustment Association have begun to further address the ethical dilemmas faced by practitioners. A committee has been recently formed to initially consider the adoption of a conflict of interest statement and to eventually examine the current VEWAA ethical codes and formulate a casebook suggesting possible solutions to ethical dilemmas faced by vocational evaluators. Guidelines defining ethical behavior would not only enhance the professionalism of current practitioners, but also provide a framework for future generations of vocational evaluators

and work adjustment specialists. The suggested casebook of ethical dilemmas and case rulings will serve as a basis for reinforcing ethical principles among practicing vocational evaluators and work adjustment specialists. As noted by Wahl (1983), "the achievement of certification for evaluation and adjustment specialists is a sign of growth for the profession which is accompanied by added responsibility for continuing concern that the professional engage in the most effective and most ethical practice of their profession" (p. 84).

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PROFESSIONAL ADVOCACY IN VOCATIONAL EVALUATION AND ASSESSMENT

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Abstract

Vocational Assessment and Evaluation as a profession has expanded to a variety of disciplines in recent years. It is currently utilized in many settings and with varying populations. A myriad of professional groups presently exist whose members include individuals responsible for providing vocational assessment and evaluation services. Creating a mechanism for consistency of effort to clarify common areas of need, and to establish professional standards and guidelines would strengthen the field and enhance our profession's effectiveness.

At the grass roots level, strategies are needed for mobilization of effort to address legislative attempts to eliminate or alter existing services. Unification of allied professional groups would result in a stronger lobbying presence. Recent legislation calls for assessment services and resultant programs need a sense of cohesiveness and direction so they might effectively utilize qualified providers and offer quality services in a responsible manner. At present, programs may be under-utilized as a result of fragmentation.

It is our belief that a nationally-based advisory group should be established to allow for communication, consistency, and effective collaborative strength. A 'global' outlook should be the basis for allied professionals to come together and examine the universal implications of programs, legislation, and training of providers. A system of advocacy, from the grass-roots to the national level, needs to be detailed, so that individuals and organizations may be supported in their lobbying, training, and programming efforts. The focus of this paper will be to present a model for a national advisory group, identifying several key organizations, and suggesting issues which should be addressed.

The time has come for practitioners in the field of vocational evaluation and assessment to effectively shape policies and events that define our profession. We cannot be content with the delayed response of reacting to existing policy. Literature reviews suggest a 'weak presence' of the essential elements necessary for establishing a more proactive stance. These elements include professional/name recognition, practitioner advocacy, legislative presence, collaborative relationships among representative specializations, and published research to substantiate professional effectiveness as well as provide a basis for accountability and consistency.

In examining other well-established professions, such as law and medicine, it is apparent that an organizational structure is in place that provides a system of communication (both internally and externally), consistency in practice, and effective collaborative strength. Medical practitioners have the American Medical Association, and legal practitioners have the American Bar Association. These two organizations embrace the many smaller sets, subsets, divisions, etc., which represent the concerns of individual specializations within the broader, more universal issues of mutual concern. By taking stock of our current positions, practitioners in vocational evaluation and assessment might identify common strengths upon which we can capitalize. Utilizing existing organizational structures such as those provided by the AMA and ABA, an effective model could be developed for the profession of vocational evaluation/assessment. Toward this end, we will review the concepts and issues of professionalism, advocacy and affiliation, as well as identify appropriate organizational participants and some of the advocacy issues that might be addressed by this association.

Professional Recognition

Why do Vocational Evaluators strive for professional status? In recent years the goal of establishing the professionalism of evaluation has been a central focus of both discussion and writing. The need for "community sanction" suggested by Horace Sawyer at the 1987 VEWAA forum is but one aspect of this goal, albeit one of the more traditionally identified reasons. In the current world of evaluation and assessment, perhaps the answer to why is ingrained not in the benefits of being viewed as a professional by the external world, but in the internal risks of being anything other than professional. These risks transcend issues of salary, recognition, or respect, to reach the core of that which defines 'professional'.

The "ideal" or "paradigm professionals", doctors, lawyers, and members of clergy (Moline 1986) are identified in part by their education, certification requirements and dedication to their calling. Beyond this however, they are professionals in the "honorific sense" (Moline, 1986) and are individuals with whom "fiduciary" relationships are established. This, according to Moline, is the element that truly defines a professional as separate from the myriad of employed persons who have attached 'professional' to their occupational title. In quoting Black's Law Dictionary, Moline characterizes the "paradigm professional" as "believing themselves bound to act in equity, good conscience, and good faith, with due regard to the interests of the one reposing the confidence". This, then, is the source of our motivation to achieve professional status; the abatement of misdirection of those who enter into this fiduciary relationship for the purpose of discovering their vocational potential. For as we view the present trend of insufficient monies for evaluation/assessment training programs, the influx of non-evaluation practitioners into the field, the spread of invalid and incomplete assessment data due to lack of knowledge, and the marketing of technical equipment to the layman, we know the risks are too great if we turn aside from our goal.

The basic elements necessary for achieving professional status have been thoroughly identified by McDaniel, Sawyer, and others (1987). Vocational evaluation has currently established "definable territory, several professional organizations, a certifying process, university education as a prerequisite to entry, and a developing body of knowledge" (McDaniel, 1987). Despite this, however, the "fragmentation within the field of rehabilitation" and "competition for professional service territory" (Sawyer, 1987) creates an impediment to progress. When Mr. McDaniel randomly assigned the

1987 forum attendees into groups and asked them to identify the central issues facing evaluators in achieving professional status, this theme of a need for "one professional voice" (Sawyer, 1987) ran through each group's recommendations. Whether phrased as a requirement to "define our commonalities" or establish "more standardization in our practice", the urgency for "a centralized organization" was evident.

Advocacy Issues in Vocational Evaluation/Assessment

According to Webster's New World Dictionary, to advocate means to plead another's cause, to speak or write in support of something. Essentially, this is a position each of us takes as a natural part of our jobs. We advocate for our client/student, assessment position, ancillary services and sometimes a promotion.

As vocational evaluators, often we are placed in positions to both define our profession and educate our consumer. Many evaluators seek membership in a variety of professional associations, not only to remain abreast of state-of-the-art practices in related fields, but to develop collaborative relationships which can foster linkages and yield support when needed. This seems like an all-consuming job, but a necessary entity to maintain our professional status quo.

While advocacy efforts are important at the "grassroots" level, it is equally important for evaluators to voice their concerns at the local, state, regional, and national level. Policy, implementation and certification issues abound and require the expert guidance of those most familiar with the service - the practitioners. We can no longer rely on those few dedicated individuals who represent us on committees, certification boards, and congressional hearings to be the sole conveyor of concerns and issues.

Now, more than ever in the history of our profession, we face the challenge of defining our existence. Administrators seek ways to offer assessment services in shorter periods for a more cost-effective method. At times, even the evaluator is an unknown commodity, as "other professionals" have determined that they too can provide the same service.

On a federal level, policy makers seem unaware of the importance of vocational evaluation and have difficulty incorporating definitions into critical pieces of legislation. An example is the Carl D. Perkins Vocational Education Act of 1984 which mandates "assessment" services, yet provides no mention of who should perform the assessment, what it incorporates, how long it should last and how it should be implemented. Unfortunately, oversights such as these create havoc for administrators placed in the positions of translating the "letter of the law" into practical applications.

Our existence must be placed in the forefront of the arena so that the profession is given the highest regard. No longer can our professional voice remain silent. We must solicit support and bring forth a new visibility in order to ensure, to the greatest degree possible, that quality services are provided to evaluees.

Diversity of the Profession

Vocational evaluation has gained a new popularity and is found in a variety of settings including: rehabilitation, private corporations, schools, insurance companies, industry, and hospitals. In fact, an ambitious evaluator can pursue any array of entrepreneurial directions which were unforeseeable in the early days of the profession. Our services have also expanded in that evaluation no longer just looks at the individual's employment potential, but includes assessment for vocational education programming, social security disability benefits, employment-related litigations, personnel selection and work capacity/work hardening determinations (McDaniel, 1986).

The diversity of settings in which vocational evaluation/ assessment is practiced also dictates a multi-dimensional atmosphere for learning and training. By setting, a natural tendency to cross-train occurs and professionals from other disciplines provide expertise while simultaneously gaining an awareness of the profession. In turn, evaluators benefit from the exposure to new applications of assessment services and different professional perspectives.

Although VEWAA has played an important role in advocating for our professional existence, it cannot feasibly represent our many diverse roles and new directions. Other groups such as the National Association of Vocational Special Needs Personnel, The Council for Exceptional Children - Division on Career Development, and The National Association of Rehabilitation Professionals in The Private Sector have continued to exhibit a growing interest in the practice of vocational evaluation/assessment.

Collaborative efforts are necessary from a variety of professional groups, so that each issue is addressed and a stronger voice is heard. Developing ongoing working liaisons with related professional organizations can help to strengthen our position and increase our

advocating role. These organizations should be represented by as many groups as can be found among the diversity of employment positions vocational evaluation and assessment personnel now hold. Likewise, thorough representation should encompass the multi-faceted consumer groups which might utilize our services.

Professional Affiliation

What is it that prompts professional groups to come together and seek affiliation? Some reasons are 1) the existence of a need for mutual support; 2) common activity; 3) the increase probability of success; 4) the common "predators"; 5) the opportunity to decrease ambiguity and anonymity; 6) to reduce discrepancy; and 7) to gain rewards and outcomes. (Mills, 1953)

The multiple organizations currently existing (VEWAA, NARRPS, AACD, NAVAE, etc.) which represent professionals providing vocational testing and guidance certainly present with many, if not all, of the above elements and concerns. Our common interests suggest the possibility for growth through information exchange, mutual support and strength in numbers. To realize that the benefits of coalescing our various professional groups is not simply an internally inspired or self-serving process one need only consider the current conditions affecting the "environment of the nations workers" (Swanson, 1986). Our nation is operating with a severely crippled free market; the average hourly earnings for non-farm workers after adjusting for inflation have been in decline for almost a decade; and the extent of income inequality in the United States is greater today than it has been at any time since the Great Depression. The significance of quality vocational evaluation, assessment, guidance and adjustment for all people entering or reentering the American work force cannot and should not be overlooked by poorly-informed consumers and legislators, or practiced by ill-trained, unqualified practitioners.

In forming a coalition, it is first necessary to 1) identify the representative leadership; 2) arrive at a mutually acceptable position; and 3) develop a statement of issues and desired outcomes. (Parks, Henderson, 1985) There are certain characteristics which are also critical to any alliance which must be addressed: 1) clearly defined mission; 2) emphasis on common ideology; 3) equal power among groups; 4) effective leadership; 5) overlapping interests and frequent member contacts; 6) image of power; 7) variable resources; and 8) flexibility and willingness to compromise. (Parks, Henderson, 1985) Above all, there must be a sense of strong commitment to the alliance and its goals. Given strong leadership, commitment, and a sound organizational structure, a group management process which has been proven effective over the years is the goal motivation (management by objectives) process. Essentially, goals are achieved by establishing the goal, designing activities to achieve this goal, setting timelines, and monitoring progress.

A format for an alliance would include representatives from each member organization who would comprise an executive committee. These representatives would also be the major policy-making body. Their participation on the executive committee would be on a membership rotation basis to allow the least disruptive means of leadership role initiation. Also, there should be standing committees to effectively deal with ongoing functions and issues.

In considering the formation of a nationally-based advisory group, one must first establish the common element that will allow for a binding of effort. By history and definition, vocational evaluation is tied to the field of rehabilitation and is guided by the need to be knowledgeable of functional aspects of disability and by system parameters. In contrast, assessment has been the description applied to services of vocational testing within an educational setting, requiring a different set of parameters. These terms are used interchangeably yet represent very diferent meanings. As a result, consumers remain unclear regarding services, which suggests a need for an appropriate term defining our "unique" body of knowledge. It would seem that a concept such as "vocational appraisal" put forth by Karen Pell Ayella and Pamela LeConte (1987) might well transcend the specific expertise of individual practitioners. The definition of vocational appraisal as "any process of measurement of an individual's level of vocational functioning" could also allow for incorporation of the myriad of professional groups now involved in vocational evaluation and assessment. It is our suggestion that a national group be formed to bring together allied professionals who provide vocational assessment and evaluation services. This group might appropriately be named the National Advisory Council on Issues in Vocational Appraisal, and be guided by the general mission:

"To implement, enhance and retain the responsible practice of vocational evaluation and assessment by qualified individuals; encourage communication and leadership; recommend and promote major policy issues and legislation affecting vocational appraisal".

Advisory Council Members

Each of the following organizations, in their own right, represent the issues of their membership and provide services related to their unique professional needs. However, these groups are highlighted by their association to the diverse settings in which evaluators are now employed, and their ability to provide potential guidance on relevant assessment issues to the national council. This listing of potential council members is by no means complete, but should be viewed as a 'beginning'.

Vocational Evaluation and Work Adjustment Association (VEWAA). A division of the parent organization, the National Rehabilitation Association. VEWAA exists for the purpose of improving and advancing the field of vocational evaluation and work adjustment for handicapped and other individuals with vocational problems by the use of simulated and/or real work in order to enhance their rehabilitation or habilitation (Davis, 1986). VEWAA was the pioneer organization representing the issues of vocational evaluation personnel.

American Vocational Association - National Association of Vocational Assessment in Education (NAVAE). A special interest group of the Special Needs Division of the American Vocational Association. NAVAE exists for the purposes of providing a strong voice for vocational assessment personnel within the AVA structure. Likewise, NAVAE works to enhance the professional positions of personnel working in vocational assessment programs in education (NAVAE, 1988).

Council for Exceptional Children-Division of Career Development (CEC-DCD. A division of The Council for Exceptional Children which exists to provide an organization for representatives from all disciplines who are involved in career development of exceptional children, youth and adults. In addition, DCD ssists other divisions of CEC interested in developing common goals utilizing career development concepts (Division on Career Development, 1987).

The Association for Persons with Severe Handicaps (TASH). An organization which exists to enhance educational programming, employment and training opportunities and improve the quality of life for individuals with severe handicaps.

American Society of Training and Development (ASTD). A professional organization dedicated to supporting the profession and business of human resources development. This organization typically provides advocacy for training professionals in business/industry settings (American Society for Training and Development, 1989).

National Association of Rehabilitation Professionals in the Private Sector (NARPPS). An organization which exists for persons and/or organizations having an interest in the provision of rehabilitation services in the Private Sector (separate divisions of this group are specifically dedicated to Vocational Evaluation, Work Hardening and Functional Capacity Assessment).

National Association of Vocational Special Needs Personnel (NAVESNP). A special interest group of the Special Needs Division of the American Vocational Association. NAVESNP provides an association to support the interests of persons working with students with special vocational education needs. As a division of AVA, this group works to maintain active leadership in vocational, career and occupational education (The Journal for Vocational Special Needs Education, 1988).

National Association of School Psychologists. A national association representing the interests and concerns of school psychologists and issues related to school psychological services.

American Physical Therapy Association. A national association representing the interests and concerns of physical therapists.

American Occupational Therapists Association (AOTA). A professional society organized to represent the interests and concerns of occupational therapy practitioners and improve the quality of occupational therapy services (AOTA, 1989).

American Association on Mental Retardation (AAMR) - Division on Vocational Rehabilitation. A professional organization which works to promote the well-being of individuals with mental retardation and supports those who work in the field (AAMR, 1989).

Commission on Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES). A commission representing eight professional organizations charged with developing and implementing certification standards and procedures for the professional certification of Work Adjustment and

Vocational Evaluation Specialists.

This organization could provide an ad-hoc role to the council by offering advisement regarding the certification issues. CCWAVES would offer an important advocating dimension to the council as it draws membership from eight national organizations including: Association of Educators for Rehabilitation Facility Personnel (AERFP), Association for Retarded Citizens of the United States (ARC), Council of State Administrators of Vocational Rehabilitation (CSAVR), Division on Career Development of the Council for Exceptional Children (CEC-DCD), National Association of Rehabilitation Facilities (NARF), National Association of Special Needs State Administrators (NASNSA), National Association of Vocational Education Special Needs Personnel (NAVESNP), and Vocational Evaluation and Work Adjustment Association (VEWAA)).

Issues in Vocational Evaluation and Assessment

Although the representatives to this council will bring diverse views (by nature of their association), they share related interests in the effective delivery of vocational appraisal services. Inherent to each of these groups is the responsibility to present their memberships at local, state and national levels, and ensure that their views are heard.

Similarly, the National Advisory Council on Issues in Vocational Appraisal can provide advocating support, direction and advisement on critical issues affecting the practice of this service. In particular, this council could provide support on the following issues:

- o Encourage linkages between professional groups involved in the practice of vocational assessment, evaluation, and related services.
- o Ensure a procedure for quality control and program evaluation for programs providing vocational appraisal.
- o Provide a unified professional voice for vocational evaluation/ assessment personnel regarding federal legislation which affects the profession of vocational appraisal.

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PRE-EMPLOYMENT PLACEMENT SCREENING: A GUIDE TO EMPLOYABILITY

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ABSTRACT

In recent months employers, in the interest of reducing on the job injuries, have looked to work hardening therapists or physical capacity evaluators for information helpful in considering prospective new employees. The result has been the growing popularity of pre-placement screening testing. Pre-placement screening is generally 1 component in a multifaceted selection process for either prospective employees or for employees who seek to transfer from one job to another within the same company. The prospective job applicant is tested in physical performance against critical (at risk) components of the specific job for which he or she is applying. Information for this performance component is evaluated with other application information by the employer in the selection and assignment of personnel.

While the vocational evaluator or rehabilitation counselor and his or/her client have in the past felt confident in the client's ability to perform a job, they may now with increasing frequency be asked to demonstrate to the employer's satisfaction a level of physical performance compatible with requirements of a job before hire. Implications of this emerging trend are discussed in this paper.

INTRODUCTION

More than any other decade, perhaps, the 1980's has witnessed significant changes in business practices. Almost everyone today has known someone, or perhaps has experienced first-hand the effect of a merger, takeover, or downscaling of a business. These events have become hallmarks of this decade. In their wake employee turnover has been high. Workers have been outplaced or laid off in droves.

In the midst of this changing workplace, a trend is immerging in which companies are taking great care in the selection of their work force. More than ever, considered effort is being made to hire the best candidate for any given job.

PRE-PLACEMENT SCREENING

For years companies have used pre-employment testing to aid in employee selection. The physical examination and the back x-ray are 2 familiar pre-employment tests of general health. Skill tests such as typing and transcription have long been useful in employee selection. Perhaps it is just a natural extension of this practice that companies have recently begun to seek information regarding the prospective employee's ability to perform tasks at the specific physical demand level required by a given job. Across the country, agencies providing work hardening therapy report that they have been approached by companies which have asked for job specific performance testing for either prospective employees or for workers requesting transfer to another job.

The pre-placement physical performance screen usually determines the general level of work at which an individual can function safely. The level corresponds with one of the US Department of Labor's classifications of work based on the physical demands of jobs. Most typically, a pre-placement screening test will report amount of weight lifted in several ranges from floor to overhead. Some observation will also be made regarding safe lifting techniques used during testing. These data are used along with other information available to the human resources staff in making job placement assignments and hiring decisions.

Employers like the pre-placement test for several reasons. If the test design well simulates the work to be done, the employer's exposure to compensable injury is very likely reduced. Vulnerability to discrimination against a prospective employee is also lessened, for in advance of hire or transfer there is available information regarding the individual's physical capabilities and safe or unsafe body mechanics practices.

In pre-placement physical performance screening, some employers seek only general information, asking only the US Department of Labor work level classification at which the individual can safely function. By far the majority of companies, however, are looking for job specific evaluation of prospective employees. This calls for the establishment of a testing protocol for the particular work that the individual will be expected to perform, if placed in a given job. Care must be taken to insure that the test is translated from the actual job the applicant will perform.

The following is a list of the steps necessary in the establishment of a job specific pre-placement physical performance screening test:

1. Review the company's OSHA Logs to see if there is a pattern of injuries in the job.

2. Review the Dictionary of Occupational Titles description of the job for general characteristics which may be expected in the job.

3. Go to the company and see all aspects of the job as it must be done by the individuals who are currently employed in the job.

4. By observing workers in the job establish time/motion/method data to incorporate into the test.

5. Identify the components of the job that are the most stressful, and that place the worker at highest risk for injury.

6. Review findings with company management to insure that you are in agreement about the demands of the job you have observed.

7. Decide with management whether testing will take place at the job site or at an off-site facility.

8. Simulate as many high risk components as necessary to determine the applicant's capability of performing the work safely.

9. Frame the test components in a standardized testing protocol. Write out the test, especially the instructions to be given to the prospective employee.

10. Formulate the written report.

11. Review the entire package with your attorney.

12. Review the entire package with the purchasing company, so that everyone understands what will be done and what will be reported.

Only when these steps have been accomplished is it time to begin scheduling individuals for screening. It is important to screen only those applicants who have already received a clear bill of health from the physician in a pre-employment physical examination.

IMPLICATIONS FOR VOCATIONAL EVALUATORS

Vocational evaluators have a well established tradition of carefully evaluating the various components of work such as aptitudes, interests, temperament and skills in preparing clients for employment. With a growing trend toward performance testing in pre-placement screening, the vocational evaluator's client's may likely be required to demonstrate physical strength performance before hiring into a targeted job. The individual who demonstrates safe body mechanics along with required strength and agility will very likely receive more favorable consideration for placement than the individual who performs marginally.

In anticipation of the requirement of pre-placement testing, several steps may be taken. Prior to committing to a training program, the vocational evaluator may wish to have the client engage in some level of testing to determine strength and body mechanics performance. This could be in the form of a feasibility test as many work hardening facilities now offer. These tests are usually 4 hours to 5 days in duration and are priced accordingly. Through either simulation of a particular job or a series of tasks performed at a designated work level, information is obtained concerning the individual's feasible work level classification, described in terms of strength, endurance, and safe working practices.

Pre-placement screening may, in some cases, provide an alternative to feasibility testing. These tests typically run 1 to 4 hours in length, and are priced accordingly. These tests do not generally discuss feasibility, but do usually provide detailed performance data. The reader of the report is left to formulate his own conclusions regarding feasibility.

The vocational evaluator may elect to defer testing to the end of the vocational training period, closer to the time the client is actually looking for placement. Again, the evaluator may have the client engage in pre-placement screening to determine if he meets physical demand requirements or if a short period of conditioning - i.e. strengthening or body mechanics training- will provide the individual with added advantage when he applies for a job.

One approach that could work very nicely is for vocational evaluators and occupational or physical therapists to establish a business relationship. Such a relationship could be designed in one of several ways. The therapist could serve as a consultant to the vocational evaluator and could be called in on an "as needed" basis to provide evaluation in the areas of physical demands concerns. This model makes the therapist a member of the evaluator's staff, provides whatever services may be required in the evaluator's facility, and is generally one more resource the vocational evaluator has to offer in the market place.

Using a different model, the vocational evaluator may buy pre-placement testing by a therapist on an individual "as needed" basis. This testing would take place in the therapist's facility as a purchased service. If remediation is deemed necessary, this service may also be purchased from the therapist.

SUMMARY

In the competition for jobs in the late 1980's and moving into the 1990's, a new dimension has been added: pre-placement performance screening. With management's increased concern about compensable injury and about nondiscriminatory hiring practices, performance data is becoming an important component for consideration by the employer for job placement, either at the point of hire or of transfer. Care regarding body mechanics techniques and concern that the prospective worker can physically perform all parts of the job are reasons companies are using pre-placement screening tests. By recognizing this immerging trend, vocational evaluators can help their clients prepare for this challenge and win from the start as they move successfully into the work force.

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CAREER ASSESSMENT TO FACILITATE ADULT LIFE TRANSITIONS
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ABSTRACT

New opportunities in education and work are available for women. Some disadvantaged women want to participate in these trends. The present academic and economic factors for these disadvantaged women could make successful re-entry into the educational environment unlikely and "RISKY". Therefore, a transitional curriculum designed to facilitate change for this "at risk" population was developed. Used with this population, Vocational Evaluation becomes the method by which these women assess their abilities, organize their preferences, gather information about the world of work and make their vocational plan. The Mineral Area College Vocational staff has realized that some women have not developed a strong fantasy life regarding themselves as workers. Some of them have never "pictured" themselves working outside of the home. Some of the women who take part in the program have a limited "paid" work experience and work tasks outside of the home seem threatening to them.Vocational Evaluation provides work related "feedback" to these adult students many of whom have been out of the career/educational setting for years. These students in Vocational Evaluation typically use paper/pencil measures such as the COPS, CAPS, and COPES to measure abilities, interests and values related to work. Self-scoring and a good deal of self-interpretation with instruction is used to reflect the reality that each of these adults sees in her own life.
Work samples (27 total in the Vocational Evaluation Lab) and assignments to do "job shadows" are used to provide hands-on exposure to the world of work. Students search the Missouri VIEW, Dictionary of Occupational Titles and the Outlook Handbook to gain information before they make plans with the evaluator.

Vocational Assessment
The Center of the Transitional Curriculum

The Women in Transition program is a selection of courses designed to help economically disadvantaged women gain the skills and self-esteem necessary to successfully make the transition back into the classroom and into the world of work. The majority of women who participated sought to make a transition in their lives from reliance on public economic support to a readiness for financial self-sufficiency. Developers of the program saw vocational evaluation as a key component. Assessment of vocational potential fit well with the program objectives of (a) developing self-esteem and personal management skills, (b) developing career decision making and job search skills, and (c) increasing basic academic skills including G.E.D. preparation. For purposes of this paper only the assessment component will be discussed at length.

In the last four years at Mineral Area College, the approximately 150 economically disadvantaged women who have participated in the Women in Transition Program at Mineral Area College completed a course entitled, "Vocational Evaluation" as part of their transitional curriculum. Vocational Evaluation is an individualized career planning course which includes aptitude testing, inventories of both interests and values, "hands-on" experiences of work tasks through performing work samples or doing job-shadowing, and the gathering of information about the current world of work.

Profiles of the Participants

Data is being presented here which provides a brief profile of the participants in the Women in Transition Program. (Mullins, 1987).

- Seventy-five percent of the women who participated in this program were between the ages of 20 and 34.
- Over half of the participants were receiving financial support through the Division of Family Services: Aid to Families with Dependent Children.
- Sixty percent of the participants had dropped out of high school. Of these, 51% had not obtained a G.E.D.
- Ninety-seven percent of the women who participated were mothers.
- Twenty-three percent of the participants had no previous work experience. Fifty-four percent reported that they had less than two years of work experience.

Economic Need Provides Impetus for Change

A survey conducted by Arbeiter, Aslanian, Schmerback and Brickell (1978) reported that 36% of the population between the ages of 16 and 65 (more than 40 million Americans) are in a career transition status. The transition status was defined as either "actual (e.g. unemployed and looking for work, etc.) or "anticipatory" (e.g. dissatisfied with a current job and considering a new career, etc.)(p. 7). The economically disadvantaged women who participated in the Women in Transition Program were, like millions of Americans, seeking change in the economic status through career development.

Education Lessens the Turmoil of Change

In a thoughtful essay on the relationship between adult development and education, Lasker and Moore (1980) speculate about the profound effects which education can have on development. They assert that:

By raising consciousness prior to actual events, education can create a hybrid mentality that knows before it experiences. By aiding the anticipation and understanding of transition (italics added) education may lessen the turmoil of change. (p. 35)

Vocational Assessment used as an instructional tool provides adult students in the Women in Transition program with the opportunity to raise their consciousness about themselves as workers. It allows students the opportunity to anticipate some of the changes which they will need to make as their career paths change. In doing so, the vocational evaluation process fosters the desired change and "lessens the turmoil".

Employment Concerns
Major Factor in Adult Learning

Arbeiter, et al (1978) state that "the Learning Society is with us." Lifelong learning has become an integral part of a post-industrial society. The return to education for the adult fills the need for self-renewal, for advancing in a job or career with continually changing requirements, or allows the individual to accomplish tasks which were perhaps not accomplished at an earlier stage of development (pg. 6).

In a "Learning Society", Arbeiter, et al. (1978) assert, "Adults will experience many transitions during various life stages. Individuals will need to appraise their abilities and interests and ease the transition between vocational and/or avocational pursuits" (p. 6).

The U. S. Department of Health, Education and Welfare, National Center for Education Statistics, (1972) related that the reasons participants take adult education varied from advancement in career to social or recreational. However, job related issues are the most frequently cited reasons. Combining the 42.7% of adults in education who stated that advancement in work was their primary reason for continuing education with the 11.3% who gave job acquisition as a reason, it appeared that over 50% of adults in education are there because of employment concerns. (p. 71). The participants in Women in Transition fit this national trend. Employment concerns caused them to seek education. Vocational Evaluation used as their first step in the educational process increased the possibility that the educational path which they chose would lead to successful vocational development.

Vocational Assessment
From the Adult Perspective

Adults who are selecting a career path need to assess their own abilities, organize their preferences, "see" themselves in a new working way, gather information about the world of work, and make a plan for the vocational change they want.

Assess Abilities

Aptitude testing for the adult who is selecting a new career path provides current "feed-back". Years away from the formal academic environment leaves previous testing data perhaps at best out-of-reach. More importantly, this data would likely be out-of-date. Sixty percent of the women who took part in the Women in Transition program dropped out of high school. These students, as well as those who were more successful in previous educational environments need current information to help them predict success in a selected training program or new career field.

As part of the Vocational Evaluation course, each student takes a general aptitude test. The Career Abilities Placement Survey (CAPS), is used. The results of this measurement provide the student and instructor/counselor with current information on which to focus. Students score their own work which increases the likelihood that they will view results both understandable and tentative. The counselors emphasize the fact that paper/pencil test scores only attempt to measure the student's capabilities on the day of testing. Stanine scores on each section of the CAPS clearly indicate where improvements

(if any) need to be made to predict success in any given field of work.

Adult students using this test confirm their potential for success in a given career or obtain current information about what changes need to be made to predict the success desired.

Organize Preferences

While many adults may "know what they like and dislike", it is often not apparent to these same adults just how their preferences would suit them for particular types of work.

Preferences for certain activities and lack of appeal for others usually appear to be rather random "feelings" to the adult student. When faced with the opportunity to select a career path or the need to make a career plan, most adults can benefit from a method to organize these work related preferences. Adults need to see how their likes and dislikes form patterns. These patterns can then be used to indicate which fields of work would provide the most opportunity to do the kinds of activities which they like.

Once these preferences are organized, then the crucial step is to provide the student with the names of jobs which fall within the preferred of work. A number of interest inventories are used on a routine basis in the Vocational Evaluation course. The Career Occupational Preference Survey(COPS) is used most frequently. It provides our adult students with immediate information about their fields of preference.

"First-hand" and "Hands-on" Exposure to Jobs

Adults who are making a career plan and in particular adult women participating in the Women in Transition program need "hands-on" experience of work tasks and career options. Approximately 25% of the participants reported that they had no previous paid work experience and an additional 25% reported that they had less than 2 years of paid work experience. (Mullins, 1987) These students benefit greatly by using any of 27 work samples which are available in the Vocational Evaluation Lab. These are mostly Singer and Choice Work Samples. A complete list is provided in the appendix.

First-hand information about careers of choice is obtained by each student as they are assigned the task of interviewing someone who is presently doing the type of work they want to pursue. It is easier for one to understand what is needed to become a successful nurse, carpenter, electrician or dental assistant for the course including doing research on their chosen field. Grades for the class are established on the basis of tasks completed and worker characteristics (reliability and attention to tasks).

Summary

The Vocational Evaluation Center plays an integral part in the successful transition of new students, both male and female, onto the Mineral Area College Campus. Special Needs students, typically economically and academically disadvantaged and/or handicapped, need career direction. The Center is funded through the Missouri Department of Elementary and Secondary, Vocational Special Needs and Guidance Services.

Appendix

VOCATIONAL EVALUATION CENTER
MINERAL AREA COLLEGE

Below is a sample of Singer Work Stations, tests, interest inventories, and CHOICE computerized programs which are utilized in the Vocational Evaluation Center.

SINGER WORK SAMPLES

Air Conditioning and Refrigeration
Basic Laboratory Analysis
Building Maintenance
Carpentry and Woodworking
Computer Science
Cosmetology
Data Calculation and Recording
Drafting
Electric Wiring
Electronic Assembly
Household and Industrial Wiring
Medical Services
Needle Trades
Office Services
Plumbing and Pipefitting
Sample Making
Sheet Metal
Small Engine Service

Ordering Information:
New Concepts
1802 N. Division St.
Morris, IL 60450

CHOICE WORK SAMPLES

Computer Literacy
Data Preparation/Entry Clerk

Bank Teller
Accountant
Programmer
Word Processing

Ordering Information:
Allison Association
Box 313
Troy, MI 48099
(313)689-2990

PENCIL MEASURES

Career Ability Placement Survey (CAPS) - The CAPS is a comprehensive, multi-dimensional battery designed to efficiently measure abilities keyed to entry requirements for the majority of jobs in each of fourteen occupational clusters. There are eight sections, each with a five (5) minute time limit. Examinees complete the summary activity section which allows them to determine their personal areas of abilities as well as related occupations within these fourteen clusters.

Career Orientation Placement and Evaluation Survey (COPES) - The COPES provides comprehensive measurement of those personal values which have a demonstrated effect on vocational motivation and values.

Career Occupational Preference Survey (COPS) The COPS provides a measure of interests related to fourteen occupational clusters. Students can research jobs within each cluster, using the workbook which is attached.

Ordering Information:
EDITS
P.O. Box 7234
San Diego, CA 92107

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On-The-Job-Evaluations: Past, Present, and Future Trends

Philip D. Kell

Abstract

The vocational evaluation "tool" known to many of us as the Job Site Evaluation, or OJE, has not received as much scholarly attention or utility over the years as other vocational evaluation tools. Psychological tests and worksamples are less expensive (i.e. time consuming) than OJEs, and, to many an evaluator, such quick methods meet their fiscal needs; therefore, there is a strong inclination by many vocational evaluators, and other rehabilitation professional, to rely almost exclusively on psychological tests and worksample systems. There does appear to be specific qualities of an OJE that lend themselves to addressing specific questions of job readiness perhaps better than any single or battery of constructed tests or task simulated devices. If we can better identify these qualities, perhaps then we'll know better how and when the OJE might be used.

The purpose of this study was to review the past and current literature about OJEs, and compare the various methods and formats being used in the development and implementation of community-based OJEs. Similarities and variations in OJE designs were noted, theoretical and applied models identified, past and current topical issues reviewed, and future trends discussed.

In the early 1940s, the Job Tryout was being used in the senior high schools, and being considered for use at the junior high level as well (Myers, 1941). The purpose of such a Job Tryout was "...to furnish a tryout or an exploratory business course that will aid all pupils in discovering whether or not their interests and abilities are in the commercial field, and aid pupils in choosing the kind of work to enter" (p. 139).

Course work involved field trips and "work experiences" to gain the most beneficial effects for those future workers. The work programs were called cooperatives or apprenticeships; they involved some job training, evaluations, and job exploration - but, course work was the primary means for training. Myers (1941) remarked that "...actual conditions of employment as to hours of work, production, social environment, etc., are not reproduced in the school exploratory work. On this account...some pupils...find themselves unsuited to the same work under actual conditions of industry or business" (p. 154). Hence, Job Tryouts were recognized by vocational guidance counselors of the 1940s as being an effective tool in their vocational planning of a non-disabled population. The SWEP programs and other school work programs still offer these kinds of experiences today.

A nineteenth century industrial psychologist , Hugo Munsterberg (1912), thought that training and work experience were essential in order for anyone to make a correct vocational choice. Professor Munsterberg wrote extensively on the subject of vocational decision making, and other subjects associated with applied industrial psychology. His concern was that people were being too random in their job selections: "...there is no more momentous act in the individual development than his choice of life work. No decision ought to be taken with greater care..." (p. 20). He went on to state "...the learning of the knowledge and the training in the practices of doing certain acts are both indispensable..." (p. 38). So, the abstract, isolated skills are not enough; the person must not only know the steps, but experience the integration of each part as the whole. A kind of choreography of work takes place in the real job experience.

In Munsterberg's time, the industrial section of this country had a need to determine who might be best to perform certain jobs, but companies did not want to jeopardize equipment, time, or efficiency to test people on-the-job. The work sample was the answer to this predicament. Is it still the answer ? Are OJEs or Job Tryouts really needed ? In a very real sense there is no one solution for everyone in preparing for work.

In most psychological theories, there is a gradual, developmental model; children grow and develop in a "transitional" manner. Most learning occurs gradually; new knowledge is built upon older information, etc. It seems fair and reasonable to suggest that becoming ready for work requires the same gradual, "transitional" approach. The initial diagnosis of the person's disability, medical data on any limitations, psychological data on emotional and/or cognitive parameters, measures of various factors (i.e.psychometrics), use of worksamples to get indications of abilities, work behaviors and speed of learning new tasks, all of these elements lead to selection of the most appropriate work environment. This type of information is indispensable in job site selection, but by itself, this data may not be sufficient in many cases. The OJE can be that final phase prior to any additional job skills training or direct job placement. The OJE by itself may not be enough, nor are any of the other measures of human work potential sufficient by themselves, but together they work well.

Advantages of the OJE in Vocational Evaluations

In a 1978 paper, Karl Botterbusch answered the question "Why use job site evaluations (OJEs) ?" by using one word "Realism" (p. 3). It could be argued that not everyone is ready for "realism", but they might one day become ready. Client's with Chronic Mental Illness with limited management of their illness, may not be ready; or, Developmentally Disabled adults with no work experiences may not yet be ready. Some advantages of the OJE include job exploration, surveying personal job preferences, development of beneficial work habits and realistic expectations, development of work related social skills, and a chance to improve one's self-esteem.

Another benefit of the OJE is illustrated by Q. Gustin in a 1978 article in VEWAA Bulletin. A client had completed vocational evaluation (worksamples & psychometrics), and had been assigned to an On-the-Job Training site (OJT). A few weeks into the OJT, and the job site supervisor stated that the client was not working up to the levels of potential stated in the vocational report. An analysis of the data was done, and revealed no problems. Then the staff discovered that the client had stopped taking his medications. The staff believed that had this person been on an OJE prior to his OJT, this problem would have been predicted and job training time not wasted and the confidence of the client and employer maintained.

P. Como (1985) wrote on the subject of "employability". It was indicated in this article that the OJE provides an advantage in determining employability. He defined the term employability as "...the ability to perform some task(s) or behaviors that add a net value to some company's product" (p. 165). He identified four basic liabilities that subtract from this "employability": 1) Any wages or direct labor costs, 2) benefits or indirect labor costs, 3) the impact of any perceived or real negative or deviant behaviors (a real concern of many employers), and 4) the perceived cost to the company for the risk in working with persons with a disability. It's been my personal experience that the last two liabilities carry most of the weight of concern. A major benefit in dispelling such concerns with accurate information can be the wider use of OJEs. The employers are not committed to hire, yet they have an opportunity to see that persons with a disability can be good workers. While the client is getting an opportunity to demonstrate their abilities, the employer is becoming desensitized to persons with a disability. The public relations benefits can be enormous for the rehabilitation clients and specialists.

Another positive aspect of the OJE, is its usefulness across a broad spectrum of disability groups. The following list of disability groups have been served by the OJE model:

1) Head Injured (Weinberger, 1984)
2) Chronically Mentally/Emotionally Disabled (Gerber, 1979)
3) Blind and Visually Impaired (Leach, 1976, and Jones, 1976).
4) Hearing Impaired/Deaf (Fry, 1987).
5) Cognitively Impaired (Fry, 1987).
6) Physically Disabled (Green, 1973).

Ms. Weinberger noted several positive outcomes in using the OJE model with person's with Brain Injury:
"The evaluator was able to assess the types of specific work skills that the patient was capable of performing and devise an effective method for the patient to learn tasks while compensating for cognitive deficits."
This information turned out to be invaluable in client's eventual competitive job placement. Other advantages are noted or can be inferred by some of the ongoing research and/or reported experiences. Based on an "ecological systems perspective" (Szymula, 1984), it cab be inferred that the best way to understand or assess a persons' behavior is to assess that behavior in the social environment that it occurs. These "ecological" or social systems spoken of suggest a sophisticated adaptive and coping strategies need to be learned by those within the system. The OJE makes interactive demands on the client that might be deminished or non-existent in a simulated test environment.

Does this "social ecology" mean that tests and worksamples have no place in vocational evaluations - in my opinion - no. The OJE is the final, as well as different, phase of a complete vocational evaluation process. While the psychometrics and worksamples do look at the individual traits and simple combinations of those traits, the OJE looks at the interactions of these same traits in a more complex inter-relationship; i.e. in the act of functioning comprehensively to form productive work.

Botterbusch (1978) mentions a powerful advantage of the OJE over other assessment devices, and that is there is no concern for validity, or reliability, concerns about normative data, or compliance with current industrial standards. Every OJE site has the inherent demands of that job in its present form; i.e. if the person can perform the job to the satisfaction of the employer and the industry, the person can be trained and work in that job.

Another possible advantage in using the OJE in Vocational Evaluations is related to Perske's (1972) article on the dignity of taking risk. He was primarily speaking about persons with developmental disabilities, but this might be a concern for all rehabilitation clients. The primary concern being that if one uses only simulated work environments, the risks inherent in work are minimized by staff, and false expectations on performance can be fostered in the client. In addition to the implied concerns of Perske, Hanley-Maxwell (1986a & b) sees interpersonal problems as a major concern for the disabled and able-bodied in getting and keeping a job. The real advantage to the OJE seems apparent in that everything on an OJE occurs in its real social context; spontaneous events occur and must be dealt with in that unique context.

Others asserting this primacy of the Emotional/Social domains include Dr. McCarron (1976). He asserted in his vocational scale used in the McCarron-Dial work evaluation system, the primacy of the Emotional-Behavioral, as well as Coping-Adaptive, factors in his levels of vocational competencies. These factors took on greater importance as the level of vocational competency was increased; i.e. Competitive Employment level requires greater skills in the Emotional-Behavioral domains than Sheltered Employment or Supported Work. In the OJE, all these factors stated by Dr.McCarron are addressed. Thus, the utility of the OJE in any evaluation wishing to assess these behavioral / adaptive domains will find the OJE a very useful device. Another advantage mentioned (Hursh, 1983) was that the results from an OJE are more likely to meet with resistance from the client than psychometrics or worksample results.

In addition to all the other advantages mentioned so far, a well run OJE program can promote your facility in the community, and rehabilitation in general. The OJE can be a very powerful Public Relations tool. An additional advantage mentioned (Hursh, 1983) is that research suggests that tested traits or skills do not easily generalize to other competitive work. The OJE provides a forum for dealing with this issue; the measured traits, aptitudes, and abilities can be put to the test in a real job situation.

Disadvantages to the OJE in Vocational Evaluations

The skills needed by evaluators to develop and maintain an OJE model (Hursh, 1983) gets into complex management skills. The evaluator must move freely from the client to the supervisor/employer, fellow employees, and/or any Unions involved. In addition, scheduling times, any wages, insurance concerns, all must be addressed. This gives an indication of why the OJE is sometimes avoided. The most

difficult part is getting started. Some people recommend a non-payment during OJEs, but my experience is that payment of minimum wage makes the OJE experience real; the client works harder, the employer expectations are not reduced, and the motivation to progress is probably maintained or even increased.

The more varied skills required by staff, and longer staff time involved can certainly be prohibitive. It's been demonstrated that as the degree of "reality" of a vocational technique increases, so does the cost (Botterbusch, 1985). The point being, perhaps, if one wants more accurate information, one must pay more. A poorly planned OJE program, besides giving useless data, could result in increased isolation and mistrust of the rehab. facility by the business community. Also, a poor placement could result in unnecessary delays and a disgruntled client and employer. The accurate vocational test data and proper preparation can prevent, or at least minimize, these types of events.

OJEs take a great deal of work, long term maintenance, and community involvement. An example of the level of community involvement can be illustrated by our own Job Placement person at our facility (the Evaluation & Developmental Center; a comprehensive rehab.facility in the Midwest). He is involved with several local organizations, and is currently running for City Council Member. Of course not everyone has to be a member of their city council - but, it sure helps. Some business background can be very beneficial as well in the vocational end of rehabilitation. Our Job Placement Specialist, with the assistance of our vocational evaluators, develops OJE, OJT, and Job Experience sites in the community, as well as working directly at competitive placements. The Job Placement Specialist already has a foot-hold at community job sites, and can be indispensable in developing OJE sites. Just because it's an evaluation, doesn't mean that the evaluators should do all the coordinating.

The primary disadvantages to using the OJE in a vocational evaluation process would be staff time, staff development, procedural and organizational development - i.e. money. OJEs are an expensive proposition - at this time. This makes the wise and discriminating use of OJEs all the more important. If you use an OJE, you'd better not be able to get the same information you need somewhere else cheaper - e.g. tests, worksamples, situational assessments, etc. Obviously, the advantages to using the OJE, in certain cases, outweighs the disadvantages; however, the primary disadvantage (money/time) can carry the veto.

Developing OJE Sites

There appears to be three central processes or steps involved in any OJE program: 1) Development of the OJE site in the community, 2) Proper evaluation of the client on the job site, and 3) The maintenance of the OJE site for current and future considerations. The evaluator will need to think in terms of an on-going relationship with the employer that needs to be appropriately nurtured. The object is always the successful termination with the client - not the employer or business. Not only must the site be properly developed, but properly directed, and properly terminated for future use. The long-view must always be at the forefront of the vocational specialists mind.

Forms used in OJEs can be obtained through Materials Development Center, University Wisconsin-Stout. You could develop your own, but the better way is to use a form already in use; modifications can be made for any special needs. In general the form follows the function or purpose of the OJE in a particular case. Karl Botterbusch (1978) offers steps in the process of developing OJE sites, as well as insight into some legal issues. In general, my personal experiences have been in agreement with Botterbusch's suggestions. His "A Guide To Job Site Evaluation" is an excellent study guide for anyone thinking of using the OJE, and even for those who have used it in the past.

OJEs don't , or shouldn't, just happen. OJEs need to be carefully planned, and tailored to the person. This is the benefit of the vocational evaluation - psychometrics and worksamples - prior to an OJE placement. The evaluation data, including behavioral, gives clear indications of potential trouble areas to watch, as well as identifying the most suitable job site for an OJE. This should not be underestimated. Often we as evaluators, placement specialists, and rehabilitation counselors become so concerned with a speedy job placement, projected time-lines, and terminations that we short-change the person were trying to serve; it should be noted that often the client is trying to

speed the process up as well, but it's our job to keep things in perspective.

Como (1985b) speaks on marketing facility services to community employers: 1) The first and most important strategy is to become familiar and involved with the company over an extended period. An OJE site could be developed into an OJT or Supported Work or Transitional Work site. Gerber (1979) noted that in using OJEs, a concise and clear OJE report provided documented evidence of the client's real work site abilities. This can be a good future job reference - a successful OJE. The report structure itself becomes critical: i.e. if it's not on the form, it will probably be ignored. So a good OJE report form must include no only essential elements or tasks making-up the job, but the general behavioral adaptions expected of any worker. In addition, the form must be flexible enough to be respond to unexpected or unforeseen events and circumstances. Usually, this flexibility is achieved by adding a "comments" section for the supervisor on site. The client's comments regarding the OJE should be recorded on a daily basis as well to prevent conflicts and clarify the situation.

Possible ways around this concern of money/time might be to extend tax incentives for On-The-Job Training to include the OJE, and/or develop a separate line item for OJEs in state Dept. of Vocational Rehabilitation programs to be administered and controlled by the local agencies. Admittedly, such steps appear to be remote possibilities at this time. This is an important area for discussion.

Summary

Munsterberg did not believe in psychometrics measurements of individual work potential. He preferred the real environment when possible, or a very good simulation of the exact job the person was trying to perform. My own bias leans towards more, rather than less, use of the OJE in vocational assessments. Can a good vocational evaluation be done without the use of the OJE ? Yes - under the right circumstances. Individual client factors determine the need for the use of an OJE. Under certain circumstances, I would find using the OJE critical. In the past, some of those reasons have included:

1) Client feels certain that their ready for work, and can not be dissuaded. This is the time for a little "reality" encounter. Sounds rough, but facts are always easier to digest than someone else's suspicions.
2) A person has a long (e.g.5 years or more) steady work history, or may have no meaningful work history, and scores well on all psychometrics and/or worksamples. They do, however, have a disability that negatively impacts on one of the Emotional/Social and/or Coping/Adapting factors in Dr. McCarron's model for successful employment.
3) Borderline or higher level Mild MR disability groups with a some work history. In addition, they would score well or marginally well on tests (compared with general rehab.client or special population norms). Also, the MDWES and/or Perceptual Memory Test (PMT; both by Dr.McCarron) indicates a Transitional vocational level.
4) Any person scoring at the Transitional vocational level or higher, but lacks social skills/experiences. Such persons usually have no work history, or a sporadic one at best.
5) Any person with a physical disability that requires new adaptive devices. Usually, this population has a large job re-training need, so any OJE may need to be deferred. But if possible an OJE closely related to their chosen field before their training, could yield beneficial data to both evaluator and client.

The OJE is alive and well at our rehabilitation facility, but we still have plenty of room to expand such a program. Our facility philosophy of meeting individual needs - individually - has meant some additional costs and staff time, but it's been worth it. The OJE is not needed in every case (e.g. clear cases of Work Adjustment or Situational Assessments), but, as Botterbusch (1978) and others have suggested, the OJE has been under utilized by vocational evaluation specialists. With more and more emphasis on community-based work, I think the trends for the future are clear - more OJEs.

If you'd like additional references or information, please write or call me at the:
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Southern Illinois University at Carbondale
500-C So.Lewis Lane
Carbondale, IL. 62901
or phone: (618) 453-2331/6394

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CONSIDERATIONS FOR JOB SELECTION AND PLACEMENT OF PERSONS WITH CUMULATIVE TRAUMA DISORDER

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ABSTRACT

Cumulative trauma disorders are receiving greater recognition as compensable injuries. These disorders, most commonly carpal tunnel syndrome, are highly associated with repetitious movements of the upper extremities and reach epidemic proportions in certain hand-intensive industries. Cumulative trauma disorders affect more women than men, usually in their middle years. The condition often becomes chronic and a detriment to employability. A job change is often recommended by the physician and therapist. Vocational rehabilitation of the person with a cumulative trauma disorder poses a challenge as these people are often middle-aged women with few transferable skills. When planning placement, careful consideration must be given to the nature of the work and the presence of other chronic conditions with predisposing factors.

Cumulative trauma disorders, also referred to as repetitive trauma disorders, can be defined as a category of physical signs and symptoms involving the muscles, nerves, tendons, arteries or bones of an extremity as the result of chronic musculoskeletal strain that appears to be related to repetitive work activities (Putz-Anderson, 1988).

The existence of such disorders and their relationship to work activities dates back to more than 200 years ago when an Italian physician, Bernardo Ramazzini, noted that the character of materials being handled and "certain violent and irregular motions and unnatural postures of the body..." seemed to lead to the gradual development of serious diseases (Ramazzini, 1717 and 1940, cited in Putz-Anderson, 1988). The frequent relationship between certain occupations and a particular disorder can be seen in the names of such syndromes as gamekeeper's thumb, carpenter's elbow, and stitcher's wrist. However, despite such historical evidence of the relationship between the nature of work and certain physical disorders of the extremities the recognition and acceptance of cumulative trauma disorders as work-related, hence compensable, injuries is relatively new, and in fact, may vary from state to state.

The reason for this increased recognition of and attention to cumulative trauma disorders as work-related injuries is multifactorial. First, the OSHA General Duty Clause, Section 5 (a), requires each employer to provide a work environment that is free from recognized hazards that are likely to cause serious harm (Occupational Safety and Health Act of 1970). While there is no ergonomic standard for cumulative trauma disorders under this clause, OSHA does recognize "ergonomics worker injury and illnesses" as serious hazards (Conley, 1988). One well publicized example of OSHA's activities in this area is a 4.33 million dollar fine levied against the John Morrell Meat Packing Company of South Dakota in 1988 for failure to correct conditions relevant to carpal tunnel syndrome.

Second, public awareness is on the rise. As OSHA increases its efforts to uncover and correct ergonomics hazards, labor unions are also becoming involved by exerting pressure on employers and educating their members. Also, it is not unusual to see articles about carpal

tunnel syndrome in daily newspapers and magazines such as BusinessWeek. As a rehabilitation professional, the author is seeing more and more clients who are aware of carpal tunnel syndrome and its link to their work place. There is a growing reluctance to accept chronic aches and pains as part and parcel of a given occupation.

Third, in some industries the prevalence of cumulative trauma disorders such as carpal tunnel syndrome are epidemic in proportion and are a major source for lost work time, medical expenditure and compensatory payments (Armstrong, 1986; Finkel, 1985; Maeser et. al., 1986). Some examples of industries with high prevalence of cumulative trauma disorders are meat and poultry packing, small assembly work, auto assembly, and checkstand and key punch operators (Putz-Anderson, 1988; Armstrong et. al., 1982; Finkel, 1985; Feldman et. al., 1983; Birbeck and Beer, 1975).

One common denominator for these seemingly diverse occupations is the repetitive nature of the work. This repetitiveness often combines with forcefulness, awkward postures, and intense pacing to produce high-risk factors for the development of cumulative trauma disorders (Putz-Anderson, 1988; Silverstein, 1988; Armstrong, 1986). Another common factor among these industries is the hand-intensiveness of the work. Certain anatomical structures, especially in the upper extremity, are particularly vulnerable to the stresses of repetitive use (Blair, 1988; Armstrong, 1986; Feldman et. al., 1983).

Repetition, force, posture and the work/rest cycle are well documented risk-factors for the development of a variety of cumulative trauma disorders (Putz-Anderson, 1988; Silverstein, 1988; Armstrong, 1986). Repetition can be defined as the number of movements required to complete a task (Putz-Anderson, 1988). Highly repetitive tasks require repeated, excessive use of specific muscle groups often resulting in fatigue, strain and tendonitis. High repetition is a frequently cited cause of carpal tunnel syndrome.

Force can be separated into external and internal components. External forces, or mechanical stresses, are those that are exerted onto the skin and underlying soft tissues by the tools and materials being handled. Internal forces are those exerted by muscles onto bones via tendons.

The effects of internal forces are dependent upon the strength of the worker, the requirements of the task and the way in which the task is performed (Putz-Anderson, 1988; Armstrong and Chaffin, 1979).

Work postures pose a risk when they are awkward, sustained or require extreme joint motion. Awkward postures can affect strength by reducing the mechanical advantage of otherwise powerful muscle groups.

Sustained postures require high energy expenditure often leading to fatigue and strein. Extreme movements or positioning of joints, especially at the wrist and shoulder, can result in stretching or compression of peripheral nerves and arteries, ligament strain and tendonitis (Feldman et. al., 1983. Armstrong & Chaffin, 1979; Armstrong, 1986; Birbeck & Beer, 1975).

The work/rest cycle can be a critical factor in the development of cumulative trauma disorders. When there is an insufficient interval of rest or recovery time following periods of intense use fatigue and strain are likely to develop (Putz-Anderson, 1988).

Generally, it is a combination of all these factors that culminates in a chronic and, at times, incapacitating condition such as carpal tunnel syndrome. And, these occupational factors are further compounded by personal attributes and predispositions.

Age, gender, body composition and medical history also play a role. The typical client with cumulative trauma disorder is a woman in her 40's, low-skilled, and working in a low-paid assembly job (Finkel, 1985; DeHaan and Wilson, 1989). Average time on the job ranges from 5 to 9 years. This client's experience is often limited to assembly-type work and she frequently has held only one job.

The typical client also usually suffers from more than one type of disorder, i.e.; tendonitis and carpal tunnel syndrome, has reached a state of chronicity and has undergone multiple episodes of conservative, surgical and/or rehabili-tative treatment with limited success. In many cases, the physician and therapist have recommended an occupational change. However, such a change is not often possible for a client such as this who must continue to provide financial support for herself, and in some instances, a family.

Usually, the client chooses to remain at her current job which only continues to exacerbate her condition. But in time, excessive absenteeism, medical treatment and inability to meet unrestricted job demands can lead to termination of employment. Even if the client chooses to quit, her options for alternative employment are often limited by lack of transferable skills.

Furthermore, with an extensive history of cumulative trauma disorders, she may be perceived as a liability-risk by potential employers, particularly if the work is of the same repetitive nature. Without

retraining the dilemma this client faces unemployment verses continued inappropriate employment. The problem faced by medical and vocational rehabilitation professionals then is: How to circumvent the non-worker or victim role and assist the client with securing more appropriate employment.

A referral to a vocational rehabilitation agency seems most appropriate. However, determining eligibility can be complicated, particularly if the client is presently employed. Documentation of a cumulative trauma disorder as a vocational handicap can be greatly assisted by thorough medical and rehabilitation records. A physical capacity assessment documenting tolerances and symptomatic responses to repetitive work is recommended.

Assuming eligibility has been determined and interests and aptitudes have been identified, each potential occupational choice must then be evaluated for the presence of the previously defined occupational risk-factors in order to ensure the most appropriate placement of the client with cumulative trauma disorders.

The degree of repetitiveness can be assessed by first identifying the work cycle. An example of a work cycle in an auto assembly plant is as follows: Lifts template from work bench, carries to assembly line, places template on the auto frame, grasps drill, drills 4 holes, releases drill, removes template, carries template back to work bench. Timing the entire work cycle and the amount of time spent on each sequence will reveal the required frequency of movements and the potential for muscular fatigue and strain (Putz-Anderson, 1988). There are no set guidelines for defining the degree of repetition as either high or low. However, Armstrong, Fine and Silverstein (1985, cited in Putz-Anderson, 1988) developed a procedure to categorize jobs as follows:

> Low repetitive jobs: The overall cycle time is more than 30 seconds or less than 50% of the cycle time is spent performing the same type of movement.
>
> High repetitive jobs: The overall cycle time is less than 30 seconds or more than 50% of the cycle time is spent performing the same type of movement.

While acceptable or safe limits for exposure to repetition have yet to be defined, the correlation between repetition and cumulative trauma disorders has been well established. Thus, it is best to steer those clients with cumulative trauma disorders away from work falling within the high repetitive category.

Force requirements, both external and internal, of a particular job are also critical factors. Internal force, or muscular exertion, requirements are difficult to measure without without special equipment. But, a good idea of how much strength exertion is required can be obtained by observing work performance and by asking workers for their perceptions. If workers are observed attempting to maximize their leverage or putting body weight into a task a judgment of high force requirements is justified. A consensus of perceived high exertion by workers is also good reason to suspect high force is required. Also, consider the degree of static work involved. Static work, or the maintenance of a prolonged position, requires much greater muscular effort and recovery time and can lead to or exacerbate joint degeneration (Putz-Anderson, 1988). External forces that are exerted onto body tissues are more readily apparent. These include the size and shape of tool handles and the properties of materials being handled. Frequent contact with hard, sharp edges, use of hand tools that are inappropriately sized and the use of power tools that vibrate or have triggering mechanisms can stress nerves, arteries and tendons in the hand and should be limited by persons with cumulative trauma disorders. Tools can also adversely affect internal force requirements and may contribute to task repetitiveness.

Assessment of the combination of repetition and force requirements is also recommended. Highly repetitive tasks requiring high force exertions present a greater risk for tendonitis (Putz-Anderson 1988). A general guideline for the degree of risk posed by repetition plus force from least to most is :

Low repetition, low force.
Low repetition, high force.
High repetition, low force.
High repetition, high force.

Work postures should be evaluated for their effect on muscular strength and endurance and for their potential to exert excessive stretching or compressive forces on nerves, arteries and joint structures. Postures with detrimental effects include awkward or extreme positioning of the wrist or shoulder, repetitive twisting with the elbow extended and repetitive or sustained overhead reaching. The type of hand grasp used is also important. Tasks that require use of a pinch or precision grasp are highly correlated to carpal tunnel syndrome and tendonitis about the thumb, and therefore, are best avoided by persons with known tendon disorders. Some work postures are induced by work station layout or work techniques. Thus, when evaluating an occupational choice for high-risk work postures, consider the potential for modifications as well.

Does the company have a cumulative trauma prevention and control program? How is productivity measured, i.e.; are there routinely quotas or deadlines to meet that may require speed of performance? How much autonomy is there to arrange one's own work station and to utilize one's own work techniques? Favorable responses to these questions may mean minimized risks for relapse or subsequent problems for the client with cumulative trauma disorders.

Finally, the medical history of the client must be examined for the presence of other predisposing conditions such as rheumatoid arthritis, diabetes, or other endocrine disorders. These types of disorders often weaken joint structures or alter body fluid retention resulting in a greater tendency toward tendonitis, tenosynovitis or nerve compression syndromes. In fact, clients who have reached a chronic state and are candidates for an occupational adjustment often present with multiple diagnoses such as carpal tunnel syndrome and DeQuervain's disease (tenosynovitis of the thumb, extensor and abductor).

In summary, awareness of cumulative trauma disorders as work related injuries is increasing and in certain industries they are epidemic in proportion. Common factors for these diverse industries include the repetitive and hand intensive nature of the work. Along with repetitiveness, force, work postures and the work/rest cycle have been well documented as high risk factors for the development of cumulative trauma disorders.

Personal attributes such as gender, age and other medical conditions also play a role. The typical client emerges as a middle-aged woman who is essentially unskilled and working in a low paid assembly job.

Due to the chronic status of this client's condition, physicians and therapists often recommend an occupational change. Vocational rehabilitation of such a client is complex but can be greatly assisted by thorough documentation of repetitive work tolerances and symptomatic responses. Selection of appropriate training or job placement for the client with cumulative trauma disorders requires careful examination and analysis of occupational and personal risk factors.

The work/rest cycle encompasses the length of the work day and week and the speed or pace of the job. It is recommended that potential occupations be researched for trends in nontraditional work-weeks or routine overtime requirements before training or placement commences. Excessive work hours without sufficient rest can exacerbate existing conditions by eliminating needed recovery time. A person with a cumulative trauma disorder may be able to tolerate an 8 hour day but experience incapacitating symptoms if required to work 10 or 12 hours a day on a regular basis.

Each of these occupational risk-factors exist in varying degrees throughout many types of industries. However, as previously noted, certain industries have documented high prevalence rates. When selecting potential occupations or training programs for clients with a history of cumulative trauma disorder it is advisable to steer away from these industries. Additionally, there will be variance from company to company within a given industry. Therefore, when considering placement with a particular employer there are three more factors that can be explored.

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FORENSIC VOCATIONAL EVALUATION

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ABSTRACT

Private sector for profit rehabilitation has grown logarithmically from it's beginnings in the early 1970's to become a major thrust in the American health care industry. With that growth has followed a concomitant increase in the opportunities for the practice of vocational evaluation in the private sector, particularly in the legal setting. This paper presents a model of vocational evaluation service delivery in the private sector based on the techniques developed by the author in his private practice. Step by step instructions and considerations are provided for those considering developing such a practice. Some of those considerations included are: working with other professionals; credentials; establishing a fee; billing; and marketing. The paper ends with a brief discussion of other emerging private practice markets.

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Vocational rehabilitation has largely been a government run service in America since the inception of the State-Federal Vocational Rehabilitation program through federal legislation in 1920. While that program has reached level growth in the last decade, there has been an explosion in the for-profit sector of rehabilitation from nothing in 1970 to nearly 1,000 companies by 1982 with total annual revenues approaching $250 million (Lauterbach, 1982). Kaiser and Brown (1988) pointed out that private for-profit rehabilitation has been built around the vocational rehabilitation needs of the industrially injured which has absorbed increasing amounts of our federal health expenditures. For example, Power (1984) estimated that in the past decade, insurance companies have spent billions of dollars in employee benefits including vocational rehabilitation due to on-the-job injuries. The numbers of injured workers are equally staggering as the Public Health Service (1972) reported that 400,000 new cases of occupational disease are reported annually and more recently in 1986, the Bureau of Labor Statistics reported the number of workplace injuries and illness averaged 7.9 workers per 100 per year which totaled 5.6 million people. These numbers have provided fertile ground for the development of private practice rehabilitation.

Services

Vocational rehabilitation professionals moving into the private sector in the early 1970's took their roots of public service practice methods but provided increased effort in job placement as was needed by the insurance companies funding the worker's compensation system for injured workers. Many of those early practitioners were rehabilitation counselor trained and tended to minimize their efforts in assessment and concentrate on casework. Some few had worked as vocational experts for the Social Security Administration and found the concept of transferable skills as used by Social Security useful as a model for courtroom testimony as vocational experts.

As the private-for-profit field has grown, casework oriented practitioners have recognized the need for an increased emphasis on assessment resulting in the development of firms which only provide vocational evaluation services to independently employed rehabilitation specialist and for casework oriented private firms to increasingly incorporate vocational evaluation into their service component. Therefore, a role has developed along traditional lines for vocational evaluators who have transported their skills to a different market. This has

resulted in vocational evaluators not only broadening their base, but also modifying their service and techniques and moving into new areas of practice where their services have been found of benefit, most noticeably as related to the legal system. It is then possible to utilize assessment skills primarily in forensic vocational evaluation to determine the effect of the injury or illness on the worker's vocational functioning and to determine future injury incurred costs. Vocational evaluation in the legal setting therefore has been used to: assist in the determination of disability for social security; determine vocational impairment ratingsin workers compensation disputes; determine diminution of earnings in personal injury litigation; and, provide rehabilitation plans in life care planning for the catastrophically disabled.

Practitioners in this arena are typically labeled Vocational Experts by the courts but are also variously known as Rehabilitation Specialist, Rehabilitation Experts, and Vocational Rehabilitation Experts. The key however, is that to the lay population, the practitioner is expert in the knowledge of jobs and rehabilitation.

Social Security Hearings and Appeals

Under Social Security regulations, a person with adequate social security coverage, i.e. a worker who has paid into the system for a specific number of quarters, can receive social security payments and/or supplemental security income if they become too disabled to work. The Social Security Administration has developed a grid which matches injury/illness to worker age, education, and job history to automatically determine who is eligible. However, a person who is turned down for disability can appeal that decision until ultimately, they are given a hearing before a judge in the Bureau of Hearings and Appeals. The judges at their discretion can call upon medical or vocational experts to sit in on the hearings and testify in their speciality on the claimants background and potential possibilities.

For the vocational expert, the process involves reviewing claimant files without seeing the person until the hearing. The hearing consists of the judge and the claimant's representative questioning the claimant in order to highlight the problems and credibility of the claimant. The vocational expert is asked to characterize the claimants previous jobs based on their physical demands, skill levels, and to discuss any transferable skills possessed by the claimant. The judge then structures several hypotheticals in which the claimant's case is presented with varying degrees of restrictions and the vocational expert is asked what jobs exist that the claimant could perform taking into account their age, education, previous jobs, transferable skills and listed restrictions. If jobs are identified by the vocational expert, then they are required to provide information on the number of those jobs which exist in the area of the claimants residence. Vocational experts in this setting are utilized in a high percentage of cases to review unskilled workers who have injuries which restrict them to light or sedentary jobs. After the presentation of the vocational expert in response to the judge's hypotheticals, the claimant's representative and with some judges, the claimant, have the opportunity to cross exam the vocational expert.

In order to perform this job, a prospective vocational expert has to apply to and be accepted by the Social Security Administration in Baltimore, Maryland. It is advisable however, to visit the Judge in charge of the regional Hearings and Appeals office and gain their backing. They will be interested in the training and experience background of potential applicants and they seem particularly impressed with graduate degrees and a history of placing injured workers. Current vocational experts with Social Security are usually asked for recommendations when openings occur in a local office so that another route to this work is to get to know these people and ask for a recommendation.

Vocational Impairment Ratings

Worker's compensation legislation was established at the beginning of the twentieth century in order to prevent employees from making legal claims against employers for medical and support benefits needed after workplace injuries and illnesses. Workers compensation is determined by state legislation and Therefore coverage and benefits vary between states however,the state law defines who must be covered and the limits of coverage. The coverage is supplied by insurance companies who write workman's compensation policies or it can be done through self insurance which is done by large companies. When an individual is disabled on the job, they are required to turn in an accident report and the insurance company is responsible for the medical cost resulting from that injury or illness and for offsetting the lost wages. If a person is totally and permanently disabled, the insurance company is usually required to pay all medically related cost and a lifetime weekly wage. That weekly wage can be 66% of the person's work wage up to a maximum weekly amount. The insurance company can pay the person in regular payments or in most states, has the option to settle with the person for an agreed upon lump sum of money.

For the person who is temporarily disabled, they generally receive medical payments and a wage offset for the period of time they are off work. That is terminated when they resume work and are considered healed. The most confusing cases to deal with are those considered permanent partial disability for which the insurance company is responsible for paying medical benefits and some salary supplement. In this instance, the injured worker, court, and insurance company need assistance in determining the degree or percent of disability from which they can base a settlement. The

vocational portion of the settlement is derived by multiplying the percentage of impairment by the amount of money which would be paid a permanently disabled worker for wage offset times a maximum number of weeks the person is eligible if there is a limit.

In years past, the impairment was determined from a medical percentage of disability assigned by a physician. However, commonly a medically determined loss which is considered a small percentage to the person's body as a whole can be devastating to the person's chances of working. For example, an illiterate timber cutter over forty years of age who is limited to a lifting restriction of 20# maximum from a back injury may receive a 15% medical impairment rating and based on that, be offered a settlement from the insurance company of approximately $9,000. That person may be severely vocationally impaired and receive a vocational impairment rating of 80% which would entitle him to a settlement of $48,000 under the same guidelines.

In determining vocational impairment ratings for this purpose, there is no standard upon which the field has agreed to calculate the vocational impairment percentage. This has therefore left room for both injured worker attorneys and insurance company attorneys to hire vocational experts. The Vocational Experts utilize age, education, previous work history, test data, and physical restrictions to determine a percentage of loss of access to the labor market and percentage of expected wage loss. They may also factor in employer prejudice, unemployment figures, retraining costs, and other data in arriving at their conclusions.

In this process, the vocational expert is retained by one side's attorney to determine the vocational impairment rating. Results of the evaluation are given to that attorney who will determine if they are helpful to the case. If so, the results are communicated to the other side who may schedule a discovery deposition to determine what the vocational expert will say in court, i.e. their method of arriving at their findings, and the potential credibility of the expert to the judge. The vocational expert may have their results utilized by the two sides in reaching a settlement or may appear in court, generally circuit court, for a judge to evaluation their testimony along with other testimony against the law to reach a determination. Approximately, ninety percent of cases are resolved before going to court depending on the attorney.

Diminution of Earnings

In the American legal system, manufacturers are liable for defective products which injury people, particularly if negligence can be demonstrated. Negligence also plays a part in the liability of professionals such as physicians who injure their patients. In those types of litigation, the case has two parts, i.e. the determination of liability and secondly, the determination of damages. Vocational experts are utilized by the legal system in this situation to determine vocational damages in the form of loss of wage income, i.e. diminution of earnings. In this situation, the vocational expert determines the person's pre-injury wage and projects their post-injury wage potential. If the post-injury wage is less, that data can be used to determine the person's total loss of income in their expected lifetime to arrive at a total sum of money which the injury cost due to a reduction in wage.

Vocational evaluators undertaking this work can expect to work with disabled adults down to infants. If the injured person is younger and has not reached their career maturity, then the vocational expert is required to project their potential pre-injury average wage based on family expectation and average worker data. Post injury wages can be determined utilizing the restrictions imposed by the injury to determine post-injury potential jobs and secondly, the wage rate. In this case, wages are averaged across numerous realistic job possibilities.

Vocational experts are utilized by attorneys who feel they can sell a judge, jury, and the other side on the qualifications of the vocational expert which tend to be a combination of vocational rehabilitation education and experience. There are several standard defenses against the testimony of a vocational expert including challenging the credibility of the expert through an attack on their credentials. Of interest is the problem of over exposure of the expert in the court as a witness too many times for one side or the other at which point, the expert loses credibility. In this instance, a person can literally work themselves out of a job.

Life Care Planning

A relatively new area of forensic rehabilitation practice which vocational evaluators are discovering is concerned with Life Care Planning. In the situation where damages are being computed, a rehabilitation expert is in the position to determine the other than vocational cost to the injured party as a result of the negligence or malpractice. Such costs which can be considered include psychological counseling, physical or occupational therapy, future surgery or medical expenses, needed medical equipment, drug expense, special care facility expense, tutoring, household modifications, attendant care, van/auto modifications, special education, vocational evaluations, or any of the other multiple service, equipment, and materials cost associated with a catastrophical injury. In this instance, a vocational evaluator can serve as part of a team working on such a document or can prepare the entire report if they have a broad background in medical and vocational rehabilitation.

With any of these service areas, the vocational evaluator is in position to take on the role of vocational expert in the court if he/she has appropriate education and experience

and is willing to undergo the stresses imposed by this area of practice. To actually do this job requires the use of a model of services which compresses the public sector evaluation model but follows much of the same procedures.

VOCATIONAL EXPERT MODEL OF SERVICES

The vocational expert model of services in Figure 1 presents the five steps performed by a vocational evaluator in carrying out a forensic vocational evaluation. It begins with a review of pertinent background information. Of particular interest in that review are reports or depositions which provide specific information on physical or mental restrictions which are imposed upon the injured worker by the illness or injury. For example, it is necessary to understand that a person is restricted in bending and stooping or working around fumes or heat. If this information is not readily available, it may have to be specifically requested from the treating practitioners or gathered from a new evaluation such as a physical capacity evaluation before the vocational results can be tabulated. Secondly, information on the worker's former employment such as in a personnal manual job description or a job analysis of the customary work is invaluable to the vocational evaluator. Lastly, information about the wage history, customarily in the form of income tax returns is of assistance in computing wage loss.

The second step involves meeting with the injured worker for an interview to develop a detailed personal, educational, and work history and gain their perspective on their injury and it's imposed limitations. The credibility of the injured worker is always in question in court in that they have a monetary gain by appearing incapacitated so that it is best to understand their perspective on their injury but develop restrictions based on a third party assessment. Since the vocational evaluator will be testifying as a vocational expert, emphasis in the interview should be given to gathering the data about the vocational background including the order of the jobs in the work history, the exact type of work done, the physical demands of the job as they performed it, the pay received, and the dates worked on the various jobs. In later reporting this information, the vocational expert can temper the reported description of the jobs with their resource descriptions of those jobs as they are customarily performed in the national economy.

Following the interview, testing is generally done to clarify the level of functioning of the injured worker to compare it with the expected skills from their previous employment. An additional reason to test is to give the evaluator an opportunity to observe responses of the injured worker to the test situation whether the test are mental or physical. It is prudent to begin testing with a good reading and math assessment which will have a bearing on current ability, possible future training, and on the capacity of the testee to undergo additional tests which may require a minimum reading level. Following that determination, the next order of test to consider are aptitude test to provide a clearer picture of present functioning which can be compared with Department of Labor data on the worker's previous jobs. In other areas of practice, vocational evaluators have been advised to customize their testing approach to the individual however, in forensic assessment, it is best to have several standard tests which would be of a usual and customary nature in vocational evaluation to demonstrate to the court that this evaluation meets the standards of the field. Further testing beyond the aptitude tests are not generally required however, their use should be determined by individual needs such as interest testing if working with a person who will have to change fields of work, physical capacity testing to verify limitations, or work samples on specific job areas to determine present skill or physical capacity levels for that job.

In analyzing the results of the background review, interview, and testing, the evaluator has to depend on resources which provide information on jobs such as job descriptions, job families, aptitude levels, strength and physical demand levels, educational levels, environmental factors, and relationship with data, people, and things. These sources are used in better understanding the complexity and demands of the former jobs and in performing transferability of skills analyses. While this information can be retrieved by hand from a library of occupational information, it is time saving and thus cost effective to utilize computer programs which contain this data. Further, determining a loss of access to the total pool of jobs available in an individual's labor market is tedious and not inclusive in using hand methods and virtually demands computerized assessment.

The last phase of the model for services requires that the evaluator communicate their process and the evaluation results in a meaningful way to an appropriate source. It is at this point that the skill of the vocational evaluator in clearly communicating to an uninformed or lay audience will distinguish those that can succeed in this practice from those that will not. The person referring the injured person will be the immediate recipient of the information developed by the vocational evaluator. This information is then shared with attorney's for the other side, the insurance company, and the injured party. Evaluation results can be shared in short summary letters, long and detailed reports, depositions, or in court appearance. The referring agent will generally specify the purpose of the assessment and if given a choice will have a desire for the method of communicating the results. For worker's compensation cases, a majority will only need the evaluation results containing a vocational impairment rating to effect a settlement. Quite a few will go on to require a discovery deposition by the other side and of those, a few will require a court appearance. Of the personal injury cases in litigation, many will settle before a court

appearance is required but a higher percentage will require testifying in court. It can not be too highly stressed that the skill of the evaluator at communicating in those situations is of paramount importance to their effectiveness.

In the next section, considerations are presented which must be delt with in setting up a forensic vocational evaluation practice. Items discussed include working with other professionals, evaluator credentials, establishing a fee, billing, and marketing.

CONSIDERATIONS

In moving into this area of practice, a number of considerations need to be made in order to effectively provide the service and to insure additional referrals. The following discussion will briefly provide an overview of those considerations.

Working With Other Professions

In doing forensic vocational evaluation, the evaluator will frequently be in contact with other professional workers and will be in the position to make and receive referrals from them. Many of the fellow professional workers are in the same team role as in other settings however a few new players are encountered. The first duty of the evaluator is to screen reports, findings, diagnostic work, and treatment plans from other human service workers. Medical and surgical reports, psychological assessment and treatment plans, physical/occupational therapy reports, and physical capacity evaluations are commonly reviewed by the evaluator. In this instance, the work of the evaluator is the same as in other settings with the exception that evaluators need to be aware of their expertise and not attempt to overly explain or interpret findings from other professionals.

Often referrals are received by attorney's representing one side or the other. Those representing the person who initiates the litigation (generally the injured worker) are designated plaintiff attorneys and those representing the party being sued (generally the insurance company) are known as defense attorneys. Both hire vocational experts if they think the expert can help in the preparation of the case, however it appears that plaintiff attorneys see the need more often than defense attorneys. The role of the attorney is to represent their client as best they can to win the case for their client and they will utilize any technique legally possible to provide that win. Of interest to the person new to this setting is that attorneys are taught to argue or defend either side of a case and while one might appear to be totally against the vocational expert in depositions or court, the vocational expert may later receive referrals from that attorney if they feel the expert did a good job. In other words, the attorney's arguments and techniques are often more in the line of doing the job than it is any real animosity toward the vocational expert. Attorney knowledge of vocational evaluation can range from nothing to sophistication depending on the number of times they have come up against someone from this field. The attorney's role calls for them to be expert on the law and to learn enough about the work of the expers involved to ask good questions to help make their case. In preparing their case, attorneys are required to outline the basic course of their plans for the case to the other side so that that side can prepare itself. In that process, they are required to list the experts they intend to utilize and the attorneys for the other side have an opportunity to conduct a deposition to determine what the expert intends to say in court. In the deposition or in court, one side will begin questioning of the expert and the other side will have the opportunity to ask questions next. Following the examination and cross-examination, they can go back and forth until attorneys for both sides are satisfied. The attorney who feels the expert has aided his case will want to build up the credentials and techniques utilized by the vocational expert in reaching their opinion and the other attorney will try to not allow testimony or discredit the expert or their work.

In developing the case, the attorney will call for medical then psychological expert testimony first to establish the nature of impairments and restrictions. The vocational expert is then called to establish the vocational impairments from imposed medical and/or psychological restrictions. Lastly, an economist may be utilized to add monetary meaning to the vocational loss. Their role is to take the information provided by the vocational expert such as wage loss or needed services and to provide a total figure of the money which will be lost or needed in the person's expected lifetime. This particular professional is the one which vocational experts need to keep in close contact to assist them in their work since much of it depends on the numbers provided by the vocational person. With all these professionals, the vocational expert must understand their role and the contribution they are making to the total picture and be willing to interact on a peer level when needed.

Credentials

The credentials of the vocational expert are important in establishing themselves to judges and juries as being knowledgeable in their field. The credentials presented are initially based on the appropriateness of the education and work experience possessed by the vocational expert however, this is quickly superseded by the ability of the expert to present themselves as a trustworthy and credible person. If an expert projects any image other than honesty, their utility in court will be shortlived. Education seen as appropriate includes a minimum master's degree in a rehabilitation area such as vocational evaluation or rehabilitation counseling. Work experience in vocational evaluation of different

disabled populations is necessary and it is desirable to have had experience actually placing disabled workers and working with employers.

Additional credentials which will add to the vocational expert's credibility are a work background of referrals from both plaintiff and defence attorneys, professional involvement in organizations, and the holding of appropriate certifications and licenses.

Fee Schedules and Billing

There are two approaches in establishing fees for services; the reasonable wage and the fair market approach. The reasonable wage approach suggest that a person will determine what it takes to earn a fair but meager living and add in all necessary expenses to perform the work such as travel, equipment, secretarial support, utilities, etc. This amount is then divided by the available work hours to derive an hourly fee which is charged for all work completed. In the fair market approach, the worker determines what the market will bear and charges as much as possible and still garner referrals. In this supply and demand approach, the fee is adjusted upward if there are ample referrals and adjusted downward if there are not sufficient referrals to maintain a full time practice. In some settings such as Social Security, the fee is set by the agency and it becomes a matter of priorities as to whether the vocational expert feels the fee is sufficient to conduct the service.

It is possible to bill for services based on an hourly fee or to establish a fee per case. This latter method seems to be utilized more where there is volume work or keen competition in a geographical area and a typical fee per client evolves. The hourly fee method is one utilized by attorneys so that there is generally little resistance to this method of charging. The biggest resistance is often the vocational expert who has worked in public service backgrounds and has a difficult time charging for the time they actually spend on a case.

Due to the problems in billing and cash flow, some vocational experts require a retainer to take on a case in which the referring attorney puts up an amount of money which is charged against until exhausted. Others prefer to wait until their service is performed and bill for the service. Although it takes longer to receive pay for the work in this latter method, it does offer the advantage of not being paid until the service is actually done. In either instance, it is important for the vocational expert to develop a bookkeeping and billing system to track expenditures, work performed, and monies received and owed to keep accurate records for cash flow and income tax purposes. There are several good small business accounting, money management, and timebilling computer programs which can assist a busy practitioner in this effort.

Marketing

In this business, the vocational expert will be competing in the free market environment with other experts and agencies offering the same service. Being innovative, attending to the needs of the referring agent, and most importantly, providing a quality service consistently are the keys to staying alive in this business. However, every person has to get started to demonstrate their abilities. This is best accomplished by marketing the service to the most likely referral sources. Insurance companies which underwrite workman's compensation, private rehabilitation caseworkers, and legal firms with a reputation for handling personal injury cases are good places to start. Armed with a professional resume and examples of past work as demonstrated by completed vocational evaluation reports, the vocational expert in marketing will need to spend time face to face and sell themselves. Another place to seek referrals are through attendance at meetings where referral sources congregate or by making presentations as to what can be offered to professional group meetings of the referral sources.

Once a few cases are done, satisfied attorneys or insurance adjusters often will tell their associates of this service and the vocational evaluator is on the way toward establishing a reputation among the referral sources.

CONCLUSION

In conclusion, the private for-profit market has numerous opportunities for the vocational evaluator from working in business and industry to working in legal settings. The same basic techniques of practice are followed with the exception of shortening the process and emphasizing monetary loss. One of the enjoyable differences is working more closely as a respected collegue with professions not usually encountered by evaluators such as attorneys and economist. There have been ample opportunities for a successful practice in this area for the evaluator with good credentials who is capable of marketing themselves. Once entering the free market, evaluators tend to become entrapeneurial in realizing society's need for vocational expert services. Therefore, opportunities become apparent to practice in helping corporations with their hiring and promotion and the need is quickly seen for vocational input into the work hardening process. Other markets exist in alcohol and drug treatment programs and educational settings who are sometimes interested in contracting for services rather than hiring a full time person. Lastly, the evaluator with skills grounded in measurement and testing has opportunities at local colleges in teaching. In short, finding enough for a full time practice is possible in most areas if the qualified vocational evaluator has the spirit to look.

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Figure 1
PRIVATE-FOR-PROFIT
VOCATIONAL EXPERT MODEL

Randall McDaniel

I. Background Review

Purpose: To determine physical and mental functional levels and restrictions.

Techniques: Medical reports, depositions, physical capacity evaluation, income tax records.

Time: 1 - 4 hours

II. Interview with Injured Worker

Purpose: To determine family, educational, vocational, economic, medical and psychological history.

Time: 1 - 2 hours

III. Vocational Testing

Purpose:To determine ability levels and physical functioning

Test Used: Reading/Math Achievement, Vocational Aptitude
Optional: Psysical Functioning, Mental Ability

Time: .5 - 4 hours

IV. Analysis

Purpose: To develop a profile of ability change, wage change, additional costs and rehabilitation plans.

Techniques: Computerized Labor Market Access Analysis, Transferribilty of Skills, Wage Rate Determination, Service Determination.

Time: 2 - 5 hours

V. Recommendations

Purpose: To communicate results.

Techniques: Short Summary Report, Comprehensive Written Report, Deposition, Court Testimony

Time: 1 - 5 hours

Total Time: 5.5 - 20 hours

MARKETING PLAN DEVELOPMENT

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Abstract

The purpose of this paper is to provide practicing vocational evaluators with the tools needed to write a marketing plan targeting vocational evaluation products/services. The tools to be presented are a marketing audit, competitor's analysis chart, customer's need assessment, action plan, and follow-up tracking form. Also, recommended revisions to an agency's current program evaluation system to include documentation of marketing efforts is presented. The process of product identification stresses a systematic market audit and needs assessment. Actual audit and survey forms have been developed and the process is described so that the clinician will have a working knowledge of marketing procedures for implementation. This system was developed to identify the external trends as well as the internal strengths/weaknesses of the implementing agency. The authors choose to emphasis market survey and product identification aspects of marketing plan development. This emphasis will inspire the busy clinician to implement presented techniques to complete an effective marketing plan. The pending 1991 Commission of Accreditation of Rehabilitation Facilities (CARF) standards are reviewed. The procedures presented include actions needed, persons responsible, interagency contracts as well as budgetary constraints. The reader will be taken through a step by step procedure for writing the plan. In addition to the revision of an agency's program evaluation system a method of tracking marketing efforts is also presented. The marketing cost analysis and evaluation of the plan are defined and addressed briefly in this paper. This marketing plan system is a time efficient and cost effective method to address the CARF requirements while effectively targeting markets available to vocational evaluation providers.

Introduction

The competition for quality vocational evaluation services is continuing to maintain an escalating rate. The development of an agency marketing plan will identify the tools needed to respond effectively to this escalation as well as many other issues. Marketing is the analysis, planning, implementation, and control of carefully formulated programs designed to bring about volunteer exchanges of values with target markets for the purpose of achieving organizational objectives. (Simon, Eds. Berkowitz/Flexner, 1981). The 1989 CARF standards indicate that by 1991 a marketing plan will be manditory for accreditated programs. Therefore, the procedure of developing a marketing plan will be presented inclusive of forms to revise for implementation to the readers particular agency.

In the past, most service providers have implemented a sales orientation to distribution of products and services. This orientation involves the seller providing a service/product of which there is a need by a purchaser with the relationship being vertical in structure. The information flows only one direction from the seller to the purchaser. Now, a marketing orientation approach is needed with the purchaser and seller being in a linear relationship with critical information originating from both the purchaser and seller.

Figure I

Sales Orientation	Marketing Orientation
Seller ↓ Purchaser	Seller ↔ Purchaser

This marketing orientation challenges the author of a marketing plan to systematically obtain information from the purchaser regarding his/her needs and expectations. This orientation also wishes to emphasize that internal information about the seller must not be overlooked if a sound marketing plan is to result.

First, though, there are many external forces being felt by the providers of vocational evaluation services/products reflecting the trends of our profession. With the aging work force there is great

anticipation that the disabled population will truly become a necessary resource to meet the nation's labor force during the next ten years (Brown, Ed. Fry, 1988).

Stephen W. Thomas has presented a process to strategic marketing which establishes the theory behind this article's marketing procedures. Mr. Thomas highlighted six issues in respect to marketing with the first issue being "target a population". (Thomas, Ed. Fry, 1988). In this section, he indicated the worker compensation clients, social security determination claimants, and special education students (Carl Perkins Act) are viable evaluation markets representing expansion of our profession. The occupational therapists with their work hardening programs and functional capacity evaluations are challenging the definiton of vocational assessment within the market place. It truly is an exicting time in our profession representing much growth which we need to respond to systematically by using a marketing orientation.

Customer's Needs Assessment

The marketing strategy must include at least three processes; namely assessing the needs of potential customers, tailoring the service/product to meet those needs, and maintaining long term relationships with customers to receive feedback and quality assurance (Young, Rosati, Vandergoot, 1986). In the next column is Figure II which is a form devised for assessing the customer's needs.

This form is developed to be mailed to all current customer's of an agency. This creates the importance of an agency maintaining a current mailing list which is easily generated from a referral list of past customers. An agency staff member should complete all items up to question one for the ease of recipient of the assessment form. Also, this survey can be given to board or staff members as an effort to gain other perspectives. Each form presented here should be revised to an agency's specific concerns or advertising modes. To assure timely completion of the assessment by the customer an incentive may be developed such as a gift certificate for a 10% discount on the next evaluation if the assessment is completed and returned by the scheduled date.

This form can easily include questions regarding trends which may affect the stability of certain markets. For example, in Colorado when Senate Bill 79, removing rehabilitation services as a mandatory provision on workers compensation cases, was passed it was imperative that one understood the implications of this bill. Therefore, a question was added to this form requesting the amount of "old" law cases still on counselor's caseloads.

Figure II

CUSTOMER'S NEED ASSESSMENT

Dear_____:

As an effort to upgrade our services provided at _____ center, your opinion would be greatly appreciated.

Sincerely,

_____

_____

Agency Name:_____
Contact Person:_____
Products Purchased in Past 12 months:_____
_____
_____.
(Please Note: Center Staff should complete the first 3 items for ease of customers. Enclose self stamped envelope.)

1. The current image of ____ center is (please brainstorm and feel free to list adjectives):
   _____
   _____
   _____
   _____
   _____.
2. I learned of ____ center's services by:
   _____ Word of Mouth.
   (Who's:)
   _____ Phone Book.
   _____ Brochure.
   _____ Other.
3. Your services could be improved if:
   _____
   _____
   _____
   _____.
4. I like your services because:
   _____
   _____
   _____.
5. In the next 12 months I expect my own business to increase or decrease (circle choice) because:
   _____
   _____
   _____.
6. I would use _____ center more if:
   _____
   _____
   _____.
7. What testing tools are you using within your office:_____
   _____.
8. Comments:

_____
Signature/Date

Competitor's Analysis Chart

Past marketing articles emphasize the importance of understanding the competition before planning your attack on certain markets (Williamson, Ed. Fry, 1984). Figure III illustrates one systematic approach of studying the competition. This form should be completed while awaiting the return of the customer's needs assessment. It also is a document which is periodically updated throughout an operating year by adding comments of colleagues or new evaluation services as they are initiated. If an agency has an ongoing secure relationship with their own referral sources much of this information is gleamed in informal situations but may be biased.

A few of this chart's columns need to be explained. The term image is basically a list of adjectives other persons have used to describe a particular program. The strengths/weaknesses columns are used by the staff member who completes this form as a summary of the information obtained. Products and services are terms which each individual agency may define differently. In one agency the term product referred to the types and lengths of evaluation available inclusive of the written report with services being monies generated from expert testimony and consultancy work. It is the expertise of the vocational staff that we must market, further evidence that we do have services as well as products to market and sell (Bartels, 1985). The terminology of product creates an agency's personality as a competitive business entity in the market place.

FIGURE III
Competitor's Analysis Chart

COMPETITOR	
LOCATION	
MARKETS SERVED	
PRODUCTS/SERVICES	
PRICES	
IMAGE	
ADVERTISING METHODS	
INTERAGENCY CONTRACT-WITH WHOM	
STRENGTHS	
WEAKNESSES	

This form is usually formatted with the headings on top of individual horizontal columns rather than the heading being listed as above.

The Marketing Audit

Many marketing processes do not include an internal audit. This is unfortunate as the internal climate of an agency will greatly impact on the marketing potential. Included in the marketing initial analysis should be consideration of both the internal capabilities of the organization as well as the preferences and needs of the organization's current and potential customers (Berkowtiz and Flexner, Eds. Flexner, Berkowitz, Montague and Brown, pg. 88, 1981). Therefore, the following form was developed to synthesize the internal climate of an agency and the information obtained from the Customer's Need Assessment and Competitor Analysis Chart. This audit form proceeds the development of the marketing action plan and eases this process by having all necessary information partially collaborated. The marketing audit form is presented in detail in Figure IV. Of course, this form would need to be revised to a specific agency's programs.

Although the audit form is self explanatory, some of the points need to be clarified. The first section, markets served, have tables in need of expansion for use but were presented here in a concise format. The timeline for completing this form is after the needs assessment and competitor's analysis form are completed.

If feasible within an agency it would be helpful for the staff person responsible for the market plan development to have a inservice morning where all staff are presented with the completed needs assessment and competitor's analysis forms. Then as a team the marketing audit can be completed. Often, the support staff i.e. secretary's inputs are not systematically sought thus valuable perspectives not included. If time schedules do not permit an inservice setting then copies of the marketing audit form could be circulated internally.

Also, client's inputs should be included but distributing the form for completion may surpass the typical client's abilities. Therefore, interviewing client's with questions adapted to their cognitive abilities is encouraged.

The 1991 CARF standards states that the marketing plan needs to include prioritized objectives, action plan, communication plan, persons responsible/time frame and anticipated expenses (CARF Standards Manual, 1989). The forms presented are providing the data needed to write a marketing plan which is entitled an Action Plan in this article. The authors believe that eliminating these preliminary forms expediates the marketing plan process a formality and not a practical process.

Figure IV

THE MARKETING AUDIT

Purpose: An internal evaluation of current vocational evaluation services.

A. Markets Served:

1. How large is the current geographical region the center serves?

2. How are the Markets grouped? (ex: School districts, private sector offices, Divisions of Rehabilitation, Attorneys, Parole Offices, Social Security ....)

Markets Served	Rural/ Urban	Funding	Need Asses. Rtd.

Ex of Funding: Third Party Payment, Grant, Private Pay, Interagency Contract.

3. Demographics of Markets Listed in Question 2.

Market Served	# of refrls in past 12 mos.	# of rfrng Couns-elors	Products Purchased	Average Age of Client

4. What is image of your center by markets served (List comments from customer needs assessment).

B. YOUR CENTER

1. Center's income/revenue for past three years.

2. New Markets added in the past year.

3. According to Customer Need Assessments, how did purchasers hear about center?

4. What are centers current strengths and weaknesses? (i.e. facilities, location, image, report turnaround...)

5. What is turnover rate of center's employees (evaluators/ certified, technicians, secretarys).

6. What kinds of external controls affect the center? (i.e. accrediting agencies legislation)

C. COMPETITORS

1. Who are the center's competitors?

2. Have competitors increased or decreased in past year?

3. Drawing from Competitor Analysis Form, what are competitor's products/services?

D. PRODUCTS AND SERVICES

1. Products and services currently provided by center (i.e. 1,2,3 day comprehensive evaluations, career exploration, screenings, expert testimony, speakers bureau, work tolerance, transferrable skills...)

Services/Products_____
Personnel Responsible_____
% of Business_____
Critique Value of Prod./Serv._____
How long have been Providing_____
Price_____
Primary Customer_____

2. How are prices for services/ products determined?

3. When were prices reviewed?

4. What products/services would staff like to see added or deleted in next 12 months? Next 3 years?

E. ADVERTISING

1. What are current methods of advertising?

2. What advertising methods have been added in the past 12 months?

3. To whom are the current advertising methods targeted?

4. According to the Customer Need Assessment results rank advertising methods by effectiveness.

Action Plan

This is the form which attempts to address the CARF standards specifically. A plan is completed on each desired objective with the agency mission and frequently the marketing goal being consistent throughout. Objectives should be written in an affirmative action sense i.e. "will" versus "will not". Activities should be listed in chronological order and very specific. Often the targeted service area is included in the objective statement but is repeated again in its' specific area. This allows for future cost analysis by targeted area or assists program evaluation efforts. Anticipated costs should be broken down into line items as identified by the activities previously listed and then totaled per objective.

Possible future trends may have been identified by the last section on the Customer Needs Assessment. CARF emphasizes this area greatly. Examples of possible trends are listed below for clarification:

Community: New low income housing being funded increase in blue collar workers.

Government: Legislation pending regarding licensure of rehab. counselors.

Competitors: New Rehab. Unit adding new eval. staff.

Next, the plan requires identification of advertising methods. These, too, should be specifically addressed and costs identified. Interagency agreements should be investigated and may include such things as JTPA monies, contractual agreement with school district, residential facility or Division of Rehabilitation.

The evaluation of objective and actual costs are completed at an established time period such as 12 months after the plan initiation. Other action plans also include a space for revision of activities and objectives so a quarterly review can be completed and ongoing changes documented.

This is the step by step process for completing the action plan which some may choose to title Marketing Plan. The purpose of this document is to contribute to an agency's business and image therefore be sure to represent your agency realistically. "Define your service and be comfortable with your production rate". (Williamson, Ed. Fry, pg. 18, 1984). One should not get caught in the thought pattern that marketing means expansion of your programs. Current agency programs may be optimal but still require marketing to maintain such programs effectively.

Figure V

ACTION PLAN

Agency Mission:_____

_____

Marketing Goal:_____

_____

Marketing Objective #1:

Activities with timeline and initials of responsible staff:

a-
b-
c-
d-

Targeted Service Area:

Anticipated Costs:

Possible Future Trends Impacting on Objective:

Community_____
Government_____
Economy_____
Labor Markets_____
Consumer Needs_____
Service Area_____
Competitors_____
Funding_____

Advertising Methods:

Interagency Agreements Feasible:

With Whom?_____
Document Signed_____
Feedback Procedures:_____

Evaluation of Objective, activities and cost:

Actual Costs:

Date Initiated:

Date Completed:

Follow Up

The form in the next column is designed as a tracking mechanism of all marketing efforts during implementation of the marketing action plan. By completing this form on each marketing effort it will provide the needed program evaluation and budgetary information to revise or implement a new action plan. It will also expediate the next plan development.

The agency's secretary responsible for mailing brochures or responding to requested information about programs available should also be completing a form on each mailing. The form also allows for periodic updates of the agency's mailing list. The secretary should be able to pull these forms quarterly and add new person's contacted to the mailing list.

To have an effective mailing list it should be coded. For example, the computer should be able to generate multiple mailing lists from the master list such as a list of current customers, new customers, colleagues, and inquiries into services. The cost per mailing should be identified at the time of the market plan development. Therefore, the secretary checks the established cost list to determine the price difference for a mailing with brochure only as compared to a mailing with sample referral questions and a sample report.

Conclusion

This article attempted to present sample forms needed to develop a marketing plan responsive to the CARF standards. The emphasis was on internal as well as external need assessments prior to writing a market plan termed an action plan in this article.

It is apparent that to be competitive in the market place vocational evaluators will have to advertise and provide quality services. "To serve the private sector well, the vocational evaluator must respond to the time and cost restraints of the system and provide more or different services than the rehabilitation counselor has available in his/her office" (Comegys and Smith, Ed. Fry, 1987, pg. 205). This article's presented forms including determination of those services that the rehabilitation counselor has at their own disposal so that duplication of services and client's time will not result.

It is an exciting time in rehabilitation knowing that the disabled popualtion can meet the needs of the decreasing work force in the future. At the crux of all successful placements is some aspect of assessment. Evaluators are requested to be proactive in this expansion by marketing vocational assessment services and thus addressing such expansion systematically and successfully.

Figure VI

MARKETING FOLLOW-UP TRACKING SHEET

_____

DATE

_____

PRODUCT/
SERVICE OF
INTEREST

_____

ADVERTISING
METHOD/COST

_____

PERSON
CONTACTED

_____

MATERIAL
SENT

_____

STAFF
INITIAL

_____

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UNDERSTANDING THE UNIQUE CONTRIBUTIONS OF OCCUPATIONAL THERAPY WITHIN VOCATIONAL ASSESSMENT

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Abstract

As interest and need for vocational assessment of special populations has increased, the unique contributions of various allied professionals has become blurred. The purpose of this paper is to promote understanding of the role of occupational therapy within an interdisciplinary approach to the vocational assessment process. The domains of practice in occupational therapy and vocational evaluation are described. Two frames of reference used by occupational therapy in services to persons with physically handicapping conditions are delineated. Applications of occupational therapy is discussed within those frameworks. Differences in perspectives of occupational therapy and vocational evaluation are drawn to facilitate the understanding of the unique contribution of occupational therapy. These perspectives are described in terms of the scope of evaluative information gathered, task analysis, and adaptations for the worker with physical dysfunction.

Introduction

Assessment of vocational potential for persons with disability requires careful attention to a number of factors from a variety of perspectives. In order to address those multi-faceted factors, the expertise contained within several disciplines is required. It is generally held that an interdisciplinary approach to vocational assessment for persons with disability is essential. The advantages of a combined effort are threefold: 1) assessment can be addressed by professionals with unique areas of expertise; 2) results from different professionals serve to validate evaluation results; and, 3) interdisciplinary evaluations allow the individual to be viewed within different perspectives and contexts. The interdisciplinary approach can thereby serve to enhance outcome of evaluative information, ensure valid results, and facilitate a climate in which creative alternative solutions may be generated. However, as interest and need for vocational assessment of special populations has increased, the unique contribution of each allied profession has come under scrutiny. Of particular interest to this discussion are the interrelated roles of the vocational evaluator and occupational therapist.

The purpose of this paper is to examine the potential roles of occupational therapy within a systematic approach to vocational assessment. It is the intent that the reader will be better able to conceptualize the role of occupational therapy, differentiate specialization of occupational therapy and vocational evaluation, and to appreciate the continued need for interdisciplinary interactions within the vocational assessment process. To this end, comments will be directed towards basic roles and functions of each profession.

The Domain of Practice in Occupational Therapy

Occupational therapy is defined as "the art and science of directing man's participation in selected tasks to restore, reinforce and enhance performance, facilitate learning of those skills and functions essential for adaptation and productivity, diminish or correct pathology and promote and maintain health." (p.3 Hopkins and Smith, 1988) The key concept in occupational therapy is therapeutic use of self-care, work and play activities to increase independent function and may include adaptation of task or environment to achieve maximum independence and to enhance the quality of life. (Hopkins and Smith, 1988)

The domain of concern in occupational therapy focuses on purposeful activities of persons with handicapping conditions related to: a) physical daily living skills (e.g., grooming, hygiene,

feeding/eating, dressing, functional mobility, functional communication, object manipulation); b) psychological/emotional daily living skills (e.g., self-concept/self-identity, coping with life situations, and participating in one's organizational and community environment); c) play and leisure skills; and work skills. Work refers to skill and performance in socially purposeful and productive tasks which include homemaking, child care/parenting and employment preparation. Within the context of occupational therapy, employment preparation addresses precursory job activities including: prevocational activities (physical capabilities and daily living skills); work process skills; work product quality; and organizational and team participatory skills and performance.(AOTA, 1983)

Organization and use of occupational therapy within vocational rehabilitation is not a new concept. As in the vocational rehabilitation movement itself, applications of occupational therapy in work-related contexts began with the needs of disabled veterans of World War I and World War II. Growth of the profession of occupational therapy and needs of the society in rehabilitation services has expanded the practice of occupational therapy to all major disability groups, i.e., physically dysfunctional, developmentally delayed, psychosocially dysfunctional. In addition to the traditional places of service (rehabilitation centers, long-term care centers, and acute treatment center), occupational therapy is currently practiced in community-based health systems, school systems, sheltered work centers, community-based employment programs, high-risk infant treatment, and early intervention programs.

Occupational therapy can play a dynamic role within the vocational assessment process for persons with disability, especially those individuals with severe limitations. To appreciate the roles and contributions occupational therapy can make, it is necessary to understand the structure and processes of vocational assessment.

The Domain of Practice in Vocational Evaluation

Vocational assessment can best be understood from a systematic approach. (Maki, et.al., 1979) The process includes: 1) specifying the objectives of the assessment; 2) defining the content areas to be investigated; 3) gathering appropriate evaluative information, including vocational evaluations; and, 4) development of a vocational rehabilitation plan through analysis, synthesis and interpretation of the information. This process is predicated on knowledge of: the worker personality and the work environment (Dawis and Lofquist, 1984); theories of the psychology, sociology, and culture of work (Crites, 1969); specific standards for performance of jobs, occupations and vocations; and political influences and governmental regulations affecting the world of work and vocational rehabilitation.

The domain of concern of the vocational evaluation rests within the continuum of assessment of tasks, positions, jobs and occupations. This continuum may be viewed in a general hierarchical structure: The scope of occupation includes the grouping of similar jobs within a specified occupation. In turn, jobs are composed of the number of positions represented within the specific work environment. Each position is composed of a group of tasks performed by one person. Elements of each task can further describe the specific nature of the work performed. (Crites, 1969) Vocational evaluation includes measurement maximal and typical behaviors associated with work performance and work behavior. Maximal behaviors include: aptitudes, intelligence, achievement. Typical behaviors include: work personality, vocational interests and needs/values related to work. (Maki,et.al.,1979) Measurement of worker attributes are made with reference to the entire continuum of occupational analysis. Thus, the vocational evaluation provides professional judgements regarding individuals with handicapping conditions and their employability relative to specific job requirements, transferability of skills, projection of the client's potential occupational level,forecasts of existing and potential occupational trends and job markets, feasibility of vocational training and development, and job placement decisions. (Bolton, 1976; Mcloughlin, 1987)

Unique Contributions of Occupational Therapy Within The Vocational Assessment Process

Occupational therapy offers unique contributions to the process of vocational assessment. Occupational therapy addresses the underlying components of work related tasks: sensorimotor, cognitive, psychosocial components; and relevant daily living skills. Assessment of these underlying components is predicated on knowledge and understanding of anatomy, kinesiology, physiology, neuroanatomy, neurophysiology, psychology, sociology, and human development. This knowledge is integrated with theories of purposeful activity, the meaning and dynamics of activity, and performance of selected life tasks (self-care, work). (AOTA, 1983) Depending on the population served, primary dysfunction of the client, and setting within which services are rendered, occupational therapy may be applied from one or more frames of reference (e.g., developmental, object relations, sensory integrative).

For the purposes of this discussion comments will be restricted to two frames of reference used in services for persons with physically handicapping conditions-- the biomechanical and neuromotor frames of reference.

The biomechanical frame of reference in occupational therapy:

"Skeletal muscle movement is the result of muscle strength, physical endurance, joint mobility and range of motion. The objective of this frame of reference is to restore movement. Biomechanical techniques are based on the mechanical principles of kinetics and kinematics." (Kalscheur and Kari, in press)

The neuromotor frame of reference in occupational therapy:

"The neuromotor frames of reference are based on motor learning, developmental and neurophysiological theories. The focus of neuromotor frames of reference is not in compensation but the remediation of impairments in posture and movement." (Kalscheur and Kari, in press)

The underlying components of function which occupational therapy may address in either frame of reference includes: neuromotor, perceptual/motor, cognitive/motor, musculoskeletal, sensory awareness, and daily living skill components. Given the above frames of reference in occupational therapy, let us examine contributions which can be made within each step of the described vocational assessment process.

Goals and objectives of the assessment process:

When objectives delineate concern about the client's status in daily living skills related to work (e.g., toileting), strength, motion, coordination and/or perceptual functioning occupational therapy can be utilized effectively.

Content:

The content to be investigated within the biomechanical and neuromotor frames of reference includes the following areas:
1) Maximal Behaviors (maximal tolerances): reflex integration; gross and fine motor coordination; strength; endurance; sensory awareness (e.g., tactile, kinesthetic, proprioceptive, vestibular awareness); visuospatial awareness; orientation; attention span; memory; and (2) Typical Behaviors (characteristic use of capabilities): motion; sensory integration; body integration; cognitive integration; problem solving; concentration.

Collecting Data:

Clinical occupational therapy evaluations are based on a functional approach where the clients' abilities and deficits are evaluated relative to three life task areas: self-care, leisure and work. The typical evaluation includes investigation of the sensori-motor system; 2) applied cognitive and perceptual functioning; and 3) independence in daily living skill. These data are collected and compared to the unique skills and abilities the individual must possess to be functionally independent within his/her situation and general life role.

Occupational therapy evaluations may also be designed to address specific work-related tasks. This may be done within the context of behavioral analysis, situational assessment, or simulated work tasks.

Analysis of data and formulation of a plan:

The results of occupational therapy evaluations are analyzed with reference to the individual and work-related tasks required within their environment. The majority of evaluative measures are non-standardized and observational in nature. Results are typically analyzed and interpreted within in a clinical (rather than statistical) framework, employing keen professional judgements based on detailed neuromotor, perceptual/motor, cognitive/motor, and physiological functioning. Individualized plans are generated to maximize the client's performance and work behaviors through therapeutic interventions including: correction of pathology vis a vis treatment, remedial training in daily living skills associated with work performance, environmental adaptations, tool modifications, and modifications of work-tasks which are consistent with the physical and physiological conditions and needs of the client.

Differences in Perspectives Between Occupational Therapy and Vocational Evaluation

The ultimate aim in vocational assessment is to discover an optimum fit between the individual with disability and the work environment. The differences in 'content' of evaluative information collected by the occupational therapist and vocational evaluator have been described above. In the interdisciplinary mode, and with the varying domains of concern, there are notable areas of common concern within the evaluation process. However, vocational evaluation and occupational therapy make professional contributions from different perspectives. The following comments describe differences which enrich the vocational assessment process.

Differences in scope of evaluative information gathered:

As indicated above, vocational evaluation addresses the continuum of occupational analysis including tasks, positions, jobs, and occupational levels. Evaluation is predicated on knowledge related to the worker personality, the work environment, potential occupational levels the client can achieve, forecasting of occupational trends relevant to client job placement and training.

Occupational therapy addresses the areas of precursory activities in employment preparation, prevocational development (including physical capacities and daily living skills) which is predicated on knowledge related to detailed neuromotor, perceptual /motor, and cognitive/motor aspects of work-related tasks.

Differences in perspectives of task analysis:

Task analysis from a vocational evaluation perspective examines performance in relation to: work requirements and standards for work production; episodic and job-related routines (McLoughlin, et.al,); materials, products, and procedures within the total context of the work place (i.e.,total production requirement of the particular plant or business); job descriptions and specification; supervisory and management relationships; labor relations and governmental regulations.

Task analysis from the perspective occupational therapy examines the underlying components of the work-related activity relative

to the individual's functional abilities and functional deficits in detail, including: motor, sensory awareness, cognitive, psychological, social, cultural, and developmental components of the work tasks.

Differences in perspective on adaptations and environmental modifications:

Adaptations and environmental modifications from the perspective of vocational evaluation are primarily directed to facilitate work production and work behaviors, given the context of the industry or business as a whole.

Similarly, adaptations and environmental modifications from the perspective of occupational therapy also address work performance and work behaviors of the client. However, the focus is primarily directed towards enhancing the individual's capabilities to perform the work task.

For example, the occupational therapist's goal is to ensure the client is using the most effective and physiologically sound pattern of movement.

Admittedly, these contrasts in perspective are overlapping and are not mutually exclusive. However, they are useful in understanding the unique contributions of occupational therapy within the broader context of vocational assessment.

Whether vocational assessment takes place within a traditional vocational assessment format, a rehabilitation setting, or in community-based employment, evaluation strategies demand attention to multiple needs of the person with disability. Moreover, vocational assessment requires a multidisciplinary approach to ensure valid results of evaluative information, to promote a holistic approach with clients, and to expand the potential for creative solutions. Clearly, occupational therapy is one discipline which can be used effectively in enhancing the depth and breadth of the vocational assessment process, especially when addressing the detailed underlying components of work task performance.

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REHABILITATION COUNSELING AND OCCUPATIONAL THERAPY WORKING HAND IN HAND

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Abstract

Although work hardening programs are hardly unique, the approach used by Louisville Hand Surgery in Louisville, Kentucky, differs from traditional approaches by involving professionals from both occupational therapy and rehabilitation counseling. While competition among the two fields is keep for health care dollars, this does not prohibit a team approach of this kind. In order to have a successful treatment program for the injured industrial worker, one must pay attention not only to the actual physical injury but to the patients associated vocational problems. This paper outlines the approach of Louisville Hand Surgery and discusses the integration of professional services from both the medical and vocational rehabilitation field.

The cost of health care has risen considerably since 1965, at that time the United States spent approximately 55 billion dollars on health care costs. Today that cost has skyrocketed to about 500 billion. The responsibility for a large percentage of these costs lies with industry, which supplies insurance thru benefit packages and programs. (Baum, 1987) Consequently, industry will closely scrutinize how this money is being spent. Competition for health care dollars will arise because of industry's closer examination of funds. Rehabilitation counselors and occupational therapy are among the groups of professionals who will be competing for the same dollars in this changing marketplace. (Baum, 1987)

The return-to-work programs grew out of an awareness to the needs of industry to return the injured worker to the work place as soon as possible.(Baum, 1987) Such programs have grown quickly in terms of their numbers. (Pendergraft, 1987) It has been estimated that this "particular field will increase over 300 percent within the next five years." (Brandon, 1987) In today's marketplace, successful return-to-work programs mean cost efficient rehabilitation; i.e., providing quality service while keeping costs down. However, stricter control of services combined with an aging popula- tion and fewer restricted work opportuni-ties at the workplace add to the challenge faced by the professionals working in these programs.

Because of this increased growth of work hardening programs. attention should be directed to their professional staffing. As Katrina Pendegraft noted in last year's conference, Many work hardening programs are employing a multi-professional staff to deal with the complex needs of the injured worker. Through the employing of professionals, such as rehabilitation counselors and occupational therapists, work hardening programs are able to utilize the unique skills and background that each professional brings with it. (Pendergraft, 1987)

With medical and vocational assessment, the injured worker's situation is comprehensively addressed. Should medical evaluation provide data that verifies that the worker is incapable of safely returning to the

workplace, vocational assessment is used to facilitate job placement. (Baum, 1987) This multidisciplinary approach will result in more cost efficient rehabilitation since all services are coordinated during the initial phase of the program. Out of responsibility to industry and the injured worker, many work hardening programs are now employing both professions in their programs.

At Louisville Hand Surgery, rehabilitation counselors and occupational therapists enjoy a successful professional relationship. Both services are used primarily in the Back-To-Work Program, where all professionals pool their knowledge and resources for a successful return-to-work for the hand injured patient. The structure of the program itself encourages a coordination of services rather than competition. The ability of the rehabilitation counselor and the occupational therapist to work together has proved beneficial to the development of the Work Hardening Program, but especially important to the client in regard to returning to work. (Isernhagen, 1988) By working together, the rehabilitation counselor and the occupational therapist increase communication between the medical setting and the workplace. This increased communication aids in decreasing problems associated with determining a person's capacity and readiness to return to work.

The work hardening program begins with a referral from the primary physician. The patient is scheduled for a job analysis and a work capacity evaluation with the rehabilitation counselor and occupational therapist respectively. The job analysis (interview or on-site visit), determines present work demands, modifications available, and availability of light or restricted duty. The work capacity evaluation is based upon the job's actual demands. This evaluation includes active range of motion measurements of the involved extremity, manual muscle test, fine motor and dexterity test, two-point discrimination and stereognosis, grip and pinch strength and grip endurance. Each participant is also evaluated as to how they can perform the various tasks of their job at the present time, such as pushing, pulling, and lifting (amount of weight). Participation in the program involves daily work tasks and specific exercises monitored by the occupational therapist. During this period, the rehabilitation counselor, serves as a liaison between the medical setting and the workplace and maintains contact with the employer to determine job placement options. (Isernhagen)

Upon completion of the program, the occupational therapist and the rehabilitation counselor meet with the staff physician to inform him of the patient's progress and work situation. The information provided to the physician by the rehabilitation counselor and the occupational therapist enables the physician to make an objective decision in regards to the patient's work status.

The following is a case study of an industrially injured worker who participated in the Back-To-Work Program, at Louisville Hand Surgery staffed by an occupational therapist and a rehabilitation counselor.

Ms. S. a 47-year-old machine operation was injured through an industrial accident. She had a lengthy recovery period requiring several surgeries and has been off work for over a year. Her contact with her employer since the accident had been sporadic, and she harbors a great deal of resentment over her present limitation and was quite hesitant to return to work. She was referred to the Back-To-Work Program by her physician in an effort to return her to her workplace.

Ms. S's job involved a variety of machines and duties, making it difficult for the therapist to visualize and thus simulate in the Work Hardening Program. Ms. S's employer was thus contacted by the rehabilitation counselor for an on-site job analysis. The rehabilitation counselor visited her workplace, talked with her employer, and evaluated her required tasks. Her work hardening program was then developed by the occupational therapist from the information from the job analysis, simulating her job and targeting the job skills that her Work Capacity Evaluation indicated were limited. Ms. S was scheduled daily for 2 to 4 hours of work hardening. She often expressed her resentment regarding her injured hand and hesitation about returning to work since this would require her to use the machine through which her injury occurred. During the weeks Ms. S was in the Work Hardening Program, she met with the rehabilitation counselor at least once per week and discussed her concerns about her injured hand and return to work.

After 4 weeks in the program, Ms. S was re-evaluated to determine her improvements and was then seen by her physician. Objective emdical information from the work capacity evaluation demonstrated that Ms. S was able to return to her job her physician agreed that she was physically ready to return to work. Because of her hesitance about using the machines, it was decided that

Ms. S would complete a trial return-to-work before making a final decision.

The rehabilitation counselor contacted Ms. S's employer to arrange a time when she could return for a trial visit. During the job trial, the occupational therapist made various adaptations (i.e., built-up handles on a machine and lower work surfaces) so that her job tasks could be performed easier and safer.

At the job trial, Ms. S proved she was able to perform her duties well, and she expressed increased confidence while working with the machines. This information was then reported to the physician where he released her to go back to work on regular duty.

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NON-RELATIONAL DATABASES IN REHABILITATION FACILITIES

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ABSTRACT

The purpose of this study was to utilize a non-relational data base program to collect data for mutual clients of the UNT-Vocational Rehabilitation Center 's vocational evaluation and work adjustment units to determine what advantages would be gained by the "computerization" of the VRC program evaluation system.

Twenty selected variables were identified for a total of 78 mutual clients. After several hours were spent in learning to use the program's functions and options, several reports were generated using the "crosstabulation" (cross tab) and "list" functions of the program. The approximate time to create and print the reports was 10 minutes per report.

One of the outstanding features of this type of program is that report instructions can be stored using the "save report" option. This allows a list or crosstab used on a regular basis to be regenerated easily. In such cases as program evaluation, monthly reports and staff performance reviews, the time spent on tabulating results is greatly reduced. The reports generated demonstrate the versatility in comparing occurrences of data for one variable with other variables. The ability to summarize both text and numerical information was also demonstrated.

The use of a formalized data base system using this type of program would benefit the functions of program evaluation, staff performance monitoring and research. Reviewing information collected on services delivery allows for the identification of strengths and weaknesses of the programs. In addition the data base provides a historical record which could be utilized for research by extracting variables to a statistical analysis program.

OVERVIEW

Program Evaluation in Vocational Rehabilitation was mandated by the Rehabilitation Act of 1973, when the state vocational rehabilitation agencies were required to provide an annual evaluation of the effectiveness of their vocational rehabilitation programs in meeting the goals and priorities set forth in their State Plans. General standards for program evaluation were first submitted to the Rehabilitation Services Administration (RSA) in 1975. These standards in effect, mandate collection of the data to evaluate program effectiveness. The data collected for each client served are:

> if clients are placed in gainful activities suitable to their capabilities; if clients rehabilitated retain the benefits obtained from the rehabilitation process; if clients are satisfied with the vocational rehabilitation services as developed with the counselor; if available resources are utilized to achieve maximum operational efficiency (Weisinger 1975 p. 52).

The data elements collected to compare with the standards cover the general areas of placement, earnings, successful closure and client satisfaction with services, and cost of services. Follow-up variables recognized as measures of program effectiveness include, change in clients welfare status, income increases, job retention, job benefits, change in skill, and measurements of employment satisfactoriness

(Weisinger, 1975).

The identification of pertinent variables has not been a problem in program evaluation of rehabilitation facilities. These have been suggested by the RSA in 1975 and have not changed significantly. The volume of data, however, has increased due to the expansion of the eligibility criteria to include more clients in the vocational rehabilitation process. The need to disseminate information from that data to a variety of sources such as educational and mental health facilities has also placed strain on facility data management process. (Eleventh Institute on Rehabilitation Issues, 1984).

The fundamental purpose of program evaluation is concisely put by several authors. They suggest that though the process of data collection and synthesis is a job of large magnitude, the goal of determining if the program performs its mission should be accomplished by asking very basic questions. As proposed by Bennett and Weisinger (cited in Weisenger, 1975) program evaluation is "a statement of fact about how well the objectives were met". (p. 50).

The increasing emphasis on program evaluation is based on specific federal and state legislation, state agency policy, and consumer demands (Graham 1980). These influences and the advent of affordable computer-based data collection systems provide the impetus to develop state of the art management information processes, processes that will allow more effective and efficient feedback to facility staff, to referral sources and to governing authorities.

As stated by Burstein and Freeman (1985), "the cleanest way of minimizing data collection problems is to anticipate them in the design of the evaluation". In this case the design being the storage and retrieval mechanism. The use of a computerized records system would create more efficiency in information retrieval and effectiveness in the production of program evaluation reports by decreasing the amount of staff time needed to collect and tabulate the data and allow for more frequent evaluations. This would provide for the ongoing client monitoring process and would facilitate the management functions of program planning and analysis of outcome variables.

Stoner (1978) points out several considerations for the development of a management information system. He suggests that (a) the user be allowed input in the designing of the system to ensure that all appropriate information is included in the data base, (b) that relevance and selectivity of information should take precedent over quantity of information, and (c) the users of the system should be carefully trained to ensure the accuracy of the data put into the system and to ensure that they know how to get information out of the system.

PROCEDURE

The data for this study consisted of twenty variables from casefolders of a rehabilitation facility. It was collected by a graduate student at North Texas State Universtiy, who had two weeks experience using PFS:File. The student had aproximately two years experience with the work adjustment program dealing with the client programming and the case folders. He had approximately three months experience in the vocational evaluation unit working with clients and the case folders.

The approximate time to

collect and enter the ten vocational evaluation variables was 15 minutes. The ten work adjustment variables required approximately 30 minutes to collect and enter.

Reports were generated using the crosstabulation and list functions of the program. The approximate time to create and print the reports was 10 minutes per report. Several hours was spent in learning to use the functions and their options.

One of the outstanding features of this type of program is that report instructions can be stored using the save report format option. This allows a list or crosstabulation used on a regular basis to be re-generated easily. In such cases as program evaluation, monthly reports and staff performance reviews the time spent on tabulating results is greatly reduced. The reports generated demonstrate the versatility in comparing occurrences of data for one variable with other variables. The ability to summarize both text and numerical information was also demonstrated.

The ability to easily and quickly communicate the information "as is" and in summary form, that is, counted, aled, averaged, etc., allows for the identification of trends in client characteristics.

TREATMENT OF VARIABLES

The following reports were generated using the Professional File Report (1987) function which sorts and lists selected information in any desired combination. The program allows the report to be saved to a disk file, a 123 Lotus worksheet file or routed to a printer or to the screen. The variables are identified on the list format screen by numbering the desired variables in the order desired and are identified on the search format screen to indicate which records to include in the list (PFS: Professional File Manual p. 8-2).

Table 1 is a report generated by numbering the desired variables on the sort instruction screen and selecting various options to enhance the information retrieved. Options included in this example were I (invisible, causes the column to be used for sorting only), C (count, produces a frequency total at the end of the column), A (average, produces the mean of the column). The variable order and options selected in this case were PVRC : 1 I, ST: 2 I, DOB: 3 C, TW: 5 A, ATWA: 4 A, and IQ: 6. The instructions for the search screen were as follows. SS#: .. (the two periods are typed in this field tell the program to include all non-blank entries in this field in the search; PVRC: Y (the Y indicates that an exact match is required), ST: 26.. (the 26.. indicates that an exact match is required for the first two digits in this column and the two periods indicate that all non-blank entries after 26 are included).

The results are a list of the 15 clients who were placed by the VRC and who were closed from the TRC caseload as successfully employed (these variables were used to sort the records, but were not printed).

Table 1

VRC Placed and Sucessufully Closed Clients

DOB	TW	ATWA	IQ
66.6.9	4.0	18.3	
64.4.2	5.0	19.0	75
64.3.2	3.5	20.1	69
63.3.1	12.0	22.8	59
63.2.2	12.0	19.0	40
61.8.4	4.0	20.2	55
61.11.17	2.0	21.6	
59.4.13	8.0	27.6	114
58.3.7	5.0	25.8	66
58.3.15	11.0	25.7	69
57.9.12	13.0	23.4	56
57.11.23	5.0	22.5	79
50.3.22	7.0	35.2	62
50.1.4	13.0	34.4	46
44.7.31	10.0	38.9	
Count:	15		
Average:	7.6	25.0	66

Table 2 was created with the following report order and option instructions. SEX: 1 R SC (repeat instructs the program to repeat duplicate variables, which does not normally occur in column one; sub count produces a frequency subtotal when the data in column one changes and a frequency total at the end of the column), YE: 2 A (average the column), AA: 3 A (average the column), PVRC: 4 I (invisible), ST: 5 I, TRC: 6 N A (numerical, treats the data in this column as numbers instead of text). The search instructions are SS#: .. (all records that are not blank in this field), PVRC: Y (exact match, only records with y in this field are included in the list), ST: 26.. (exact match, only records with entries begining with 26 are included in the list.

Table 2

VRC Placed and Successfully Closed Clients by Gender

SEX	YE	AA	TRC
F	1	6.00	2,600
F	11	6.80	1,995
F	12	2.30	2,111
	Count:		3
M		0.08	5,390
M		1.00	4,191
M		1.60	9,587
M		4.00	3,431
M	8	6.30	2,288
M	8	10.60	1,698
M	10	6.30	3,237
M	10	12.90	9,880
M	11	9.40	4,336
M	12	1.10	4,408
M	12	2.70	2,742
M	12	3.00	3,384
	Count:		12
	Count:		15
Average:			
10		4.94	4,085

Crosstab (crosstabulate) reports are created in a similar fashion by selecting three variables. The first variable to use as row data, the second variable to use as column data and the third variable to summarize.

Table 3 is a crosstabulation of years of education by sex. The report instructions SEX: R (row, indicates that this variable is the data used for the rows), YE: C S
<5; 5->12; >12 (column,

indicates that this variable is the data used for the columns; summary (S), indicates that this data will be summarized for each cell). The groups <5; 5->12; >12 instructs the program that the data for YE is to be grouped, in this case less than 5, 5 to 11.9, and 12 or greater. The search instruction, SS#: .., instructs the program to include all records with data in the SS# field. In addition the program provides the option to summarize the cells in several ways. The summary function may be a total, count, average, or the maximum or minimum values of the data. The cells may be displayed as numbers, percent of total, percent of row, or the percent of column. In this case the summary function is count and the cells are shown as numbers.

Table 3

Crosstabulation of Years of Education by Sex

	YEARS OF EDUCATION			
SEX	<5	5 -> 12	>12	
F	14	15	3	32
M	20	24	2	46
Count:	34	39	5	78

Table 4 was created using the same cross tabulation instructions as Table 3, except that an exact match was mandated for the variable, PVRC. The search instructions indicated that only clients placed through the VRC were to be included in the crosstabulation.

Table 4

CROSSTABULATION OF YEARS OF EDUCATION BY SEX, PVRC

	YEARS OF EDUCATION			
SEX	<5	5 -> 12	>12	
F 1	2	0	3	
M 4	8	0	12	
Count: 5	10	0	15	

SUMMARY

Program evaluation is an administrative function that permits the comparison of an organization's objectives with its performance. It is beneficial to the clients served, the staff of the facility, the referring sources, the local community in which the organization is located and the accrediting body which furnishes the standards by which the facility must operate. The purpose of program evaluation is to make needed improvements in the types of services offered and the quality of those services, as they relate to the mission of the facility.

File management programs are designed to store information. This information can be in the form of numbers, text or a combination of numbers and text. The information stored in this kind of program can be retrieved in a variety of combinations. While not suitable for statistical treatment of data, this type of computer software

is appropriate for a program evaluation and staff performance monitoring system. Burton (1985), states,
"communication not number crunching, is the ultimate strength of PFS....organization and data management form another strong suit of the series" (p. 3).

Usually referred to as card-file managers, a file manager is a data base program that does not have a defined length, it expands as necessary as each record is added. Fields are created by typing a name on the screen followed by a colon. The type of data for each field cannot be indicated and the program does not monitor the type of data entered. This is a limitation because if text is entered into a field defined as numeric data the error will not be detected by the program as in the case of more sophisticated data base programs (Desposito, 1987).

Records can be searched for by a) exact match, the exact data in the field; b) partial match, data that ends with, begins with or contains the desired string c) relative match, data that is less than, greater than or equal to the desired string; or d) negative match, which searches for everything but a particular partial or relative string (PFS: Professional File Manual p. 1).

Program evaluation can be automated to varying degrees by the use of a computerized data base system. This allows increased accessibility to the data, both in terms of speed and the ability to relate variables to each other.

Increasing the efficiency of the program evaluation report reduces the costs and allows for a more systematic and timely evaluation. Several functions recieving immediate benifits from an automated system are staff performance reviews, quarterly reports, marketing functions and the ability to share results with other rehabilition facilities.

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THE NEW GAMEPLAN FOR VOCATIONAL EVALUATORS: BUSINESS & INDUSTRY NEEDS YOU!

ANN WILLIAMSON

ABSTRACT

The sport of football offers a lesson for vocational evaluation experts: you can't be successful with simply a good defense. New OFfensive moves are becomming a necessary part of the voc rehab process, and that new gameplan now includes adding evaluations of the non-disabled for business and industry to present programs.

Vocational experts historically have had two uphill battles: (1) in court depositions, establishing prior performance levels of clients, and (2) in rehab placement, convincing employers that their judgment is sound about the employee value of persons with disabilities. Now, in addition, the medical and educational fields are beginning to take some of the client potential, if not some of the expert staff as well. It is time to launch an offense for survival.

The new offense begins with a sound evaluation process designed for the non-disabled employee of business and industry. Your expertise not only is desparately sought after by business; you are the only profession that could provide leadership to the miscellaneous groups of professionals and non-professions who are trying to figure out how to provide good evaluation services for which they are handsomely paid.

What would be your reward? Besides more money, you have the toe-hold to solve the two problems mentioned. By testing non-disabled employee performance potential, you are able to document prior performance levels and loss of functioning for Worker's Comp and PI cases. (As it turns out, this is a dynamite selling point to business also!) And you have established yourself with business clients as the community expert for accurate assistance in the hiring of employees--disabled and non-disabled alike.

Following are the key particulars of the new offense. I have volumes more information than I am presenting today, and can be reached later, if you're interested.

1. What kinds of testing does business commonly require of employeees now?
(a) drug & alcohol (b) physical (c) AIDS
(d) polygraph (e) performance & ability
ANSWER: Only polygraph testing is no longer used, having recently become illegal; paper/pencil "honesty" testing has replaced it. AIDS testing is not recommended, since the conditions pose no threat to the workplace. Performance testing is now gaining in popularity since a hiatus of about 20 years, during which time it was thought to be illegal or at best impossible due to the EEOC.

2. What types of performance-based testing are popular with business' HR personnel?
(a) physchological (b) work samples (c) aptitude (d) performance/ability (e) intelligence (f) interests (g) motivational
ANSWER: All of the above except interest tests, which business finds of little use for their purposes. Even intelligence testing of sorts is now being tried, in spite of being out of favor for awhile from lawsuits in the '60s.

Some HR staff, however, do not like the term "aptitude testing," so the terms is not commonly used.

3. Why is performance-based testing becoming popular? (a) legal problems in hiring/firing create a need for more information prior to hiring (b) business competitiveness and increased need for productivity

ANSWER: Business feels its hands are tied (by EEOC regulations) trying to find out before hiring whether the candidate will work out. It also feels the pinch of foreign competition's gain of the world's production, and desparately needs the most productive employees for the wage. Performance testing provides the most objective data and the now legal solution.

4. Statistics say that 75% of the workforce of the year 2000 are already employed today, and that most of them will take new jobs that require re-training several times before retirement. How many people are employed in the US today?

(a) 75 million (b) 120 million (c) 210 million

ANSWER: (b) 120 million. By the year 2000, there will be a 210 million workforce, primarily composed of seasoned workers, rather than today's majority of entry-level workers.

5. How much money do businesses spend annually on training?

(a) $100 million (b) $50 billion
(c) $200 billion

ANSWER: (c) $200 billion and rising--due in large part to the poor education of incoming workers, but also because of new technology and revised job requirements. Most training, at the present time, is thrust upon employees without anyone's knowledge whether the person is able to handle either the new training or the new job position.

6. How much money annually, estimated by the few businesses that provide performance testing, is saved from their training budgets because of the testing?

(a)10% (b) 20% (c) 30% (d) 40%

(At today's cost of $1650 average spent each year on every employed person in the US, that would mean more than $660/employee saved -- after testing costs!)

ANSWER: Forty percent savings (d) in training budgets when performance testing precedes the training! What this means for the vocational evaluator/counselor is there's a lot of money available for the vocational expert who provides assessment services to business!

7. What type of training programs are common in HR settings?

(a) management/supervisory (b) communications
(c) computer use (d) sales (e) safety
(f) robotics

ANSWER: All of these are common training programs (remember that (b) is remedial reading and arithmetics). Computer use (c) can vary widely, from training data entry operators to executives. This list should be kept in mind, however, when approaching business with an assessment proposal; it is not as interested in entry-level or factory training programs.

8. What general type of employee does business believe it wants?

(a) highly-motivated (b) the smartest
(c) flexible attitude

ANSWER: The voc rehab field will be amazed to know that business believes it should hire only the smartest people it can find! In response to a Fortune magazine article on this subject, this speaker was able to get a letter of rebuttal published in the next issue that explained there are job positions appropriate to everyone, including the mentally retarded.

9. When is performance testing fully legal? (a) when a test measures only the abilities used on the job; (b) when the test is non-disparate to minorities; (c) when any test is available to any person who wants the opportunity to take it

ANSWER: "(b) when the test is non-disparate to minorities" is the only present legal requirement. There have, however, been contests and decisions favoring the employee/candidate when inappropriate tests have been given (that is, the test was not measuring what the job required). The last choice (c, above) has not yet been considered as a discriminatory factor in testing, but look for this to happen. There are many college graduates taking lower entry level jobs just to get a job, and they will be pushing for the higher-paying management positions. Oddly enough, though, the "non-disparate" requirement does not mean "forced affirmative action." If the performance test proves to provide well-qualified employees for a position, and no minorities seem to pass the test, it is accepted that the test is "validated" for the position.

10. What does business mean when it uses the term "validated test"?

(a) construct & predictive validity (b) recent & extensive norming (c) measures what the job requires

ANSWER: It is validated when it produces well-qualified employees by measuring what the job requires (c). This, of course, includes (a) and (b) above, but little mention is made of them (perhaps because these terms are not generally understood).

11. What causes legal problems most often in employee selection?

(a) non-normed testing (b) subjective measurements (c) testing that has a poor linkage to job requirements (d) potential employees who "make a living" filing lawsuits against business

ANSWER: By far, (b) subjective measurements cause most of the legal battles. When objective measurements are added, there is little contest. And while there will always be "freeloaders," the best defense against possible legal action is to keep the candidate happy even when he/she is denied a position.

12. What is the legal definition of a "handicapped" person (per the Chamber of Commerce)?

(a) one with physical/mental disabilities
(b) one who has AIDS (c) one who the employer believes cannot perform the tasks involved in the job

ANSWER: The employer decides if the person

is (too) handicapped for the position (c). In order to bring a charge of handicap discrimination, the person must prove that the condition is unrelated to his/her ability to perform the job. This definition is one of the forces promoting the improvement in job requirement definitions.

13. What are the qualifications of the present internal staff which advises management on the employability of an applicant?
(a) industrial psychologist (b) counselor with AB degree (c) long-time personnel staff member (d) vocational specialist

ANSWER: Staffs are being upgraded by earning continuing education units, but the local business decides what kind of staff is necessary. If there are any vocational specialists such as the rehab field requires, however, they would be few and far between.

14. Does business prefer internal or external measurement/advice services for employee selection? External, because (a) results particulars can't be gossipped and (b) they feel less liable legally

COMMENT: This is a perfect position for the private voc rehab organization who wants to expand its business.

15. What types of job requirement "needs assessments" are now common in businesses?
(a) determination of salary ranges based on broad-based job tasks (b) Worker Comp-based job restructuring (c) job task requirements based on expert assessment techniques

ANSWER: Only (a) and (b) are common. If business knew there were vocational experts who could provide consultation for (c), this type of needs assessment would also be common. At the present time, hundreds of articles are appearing on proposed techniques to make this kind of determination (none from the rehab field).

16. What D.O.T. job requirements are universally relevant to businesses' job requirements today?
(a) aptitudes (b) interests (c) personality (d) Data-People-Things (e) physical/environmental requirements (f) GED level

ANSWER: Due to the new US service-based economy (as opposed to a manufacturing economy), much of the D.O.T.'s job requirements are unwieldy or out-of-date for business. Basing performance results on worker functions (D-P-T's), however, is acceptable--primarily because it is a popular concept with non-disabled career counselors, as well as easily capable of local re-definition of job requirements. Combining the Data-People-Things functions with GED levels and physical/environmental limitations seems to produce the quality of definition needed by business.

17. What are the conditions under which business would welcome vocational experts to do objective testing for employee selection?
(a) statement of vocational expert's qualifications
(b) consulting services to help business determine job requirements for each job
(c) performance-based testing method which assesses any employee for every job in the US economy, but also gives confidential report regarding specific job and candidates in questions (KEY PHRASES TO USE: hidden talent, job switching, multiple-tasking, stress, candidate satisfaction)
(d) offer of personnel re-testing, in case of job or personal injury, to pinpoint loss of functioning due to accident
(e) expert witness testimony available

COMMENTS: Your competition will be industrial psychologist-based organizations, management consultants specializing in personnel problems, and miscellaneous pick-up tests which claim to solve employee selection problems. Business is used to the narrow vision that if there is, for instance, a job opening in Salem, a sales test should be administered; or a Computer Analyst position, a computer analyst test. Your response to this should be, "It is more economic for us to test candidates for more than the single position, because you may find that some candidates for the job are highly capable of more than this (or highly qualified for something else) and this is to your advantage in the long run." Fortune magazine has been carrying articles about some companies that are doing job-switching and/or multiple-tasking. This means that personnel are asked to do several different jobs alternately, at management's whim, when the production demand calls for additional help in one area and less in another. For this reason alone, management should be aware of the various performance abilities of their employees.

18. What type of performance-based assessment tool should you have for us in business?
(a) computer-scored, for fast turn-around
(b) Data-People-Things based, rather than aptitude-dependent
(c) handles full range of intellectual functioning (highest to lowest)
(d) able to assess both non-disabled and persons with disabilities
(e) reports the level of performance expectation of the candidate for the job
(f) mobile, to offer on-site or off-site testing
(g) primarily group-based testing, for volume assessments
(h) high test-retest reliability
(i) normed for disabled and non-disabled populations
(j) clinical-based with capacity for layman report

COMMENTS: Be very careful of the kind of assessment tools you use with business. Not every rehabilitation-based tool will work, especially when you will need to offer a full range of assessments--from management candidates to some potential workers who are mentally-retarded. The only assessment tool this speaker knows that is appropriate for all of the above conditions is from Career Evaluation Systems in Chicago. Remember, you will be considered business' expert for supplying evaluation information for all of the tasks they have available, as well as the kinds of personnel needed to fill the position.

19. What are the advantages of specialists in the

voc rehab field from this new gameplan?
(a) more money for programs and staff
(b) slower burn-out rate for evaluators
(c) higher profile in the community and increased respect from businesses for placement acceptance of "the handicapped"
(d) higher demand for expert witness testimony, due to prior/post assessments that document real loss of functioning

20. What is the "bonus" for society if the vocational rehabilitation field establishes the parameters for business to use in performance testing? Businesses will finally realize that placing greater emphasis on satisfying their human resources actually produces the highest rewards for the company.

COMMENTS: ASTD and HR staffs are promoting this concept, as well as well-known business economists. Only rehabilitation field experts, however, have the expertise NOW to make this work, when all others who are working toward this goal are simply busy "re-inventing the wheel."

Some commonly used terms:

AR -- human resource staff (previously personnel department staff)
Communications skills training -- remedial reading & arithmetic
ASTD -- American Society for Training & Development
EEOC -- Equal Employment Opportunity Commission (federal)
Test -- any subjective or objective measure of an employee or candidate for employment
Employee selection -- hiring

Implications of a Systemic Theory of Vocational Rehabilitation on Vocational Evaluation in the State-Federal Rehabilitation Program

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Abstract

This paper presents the implications of a new theory of vocational rehabilitation on the process and practices of vocational evaluation in the state-federal vocational rehabilitation program. A Systemic Theory of Vocational Rehabilitation (Cottone, 1987; Cottone & Cottone, 1986; Cottone, Grelle & Wilson, 1988) is a comprehensive theoretical framework of vocational rehabilitation that challenges current theoretical conceptions in the field. The theory focuses on relationships and how relationships affect the rehabilitation process, rather than focusing on individual traits or abilities as predictors of employment. Propositions resulting from the theory are briefly described, including how relationships are identified, analyzed, and categorized as they influence the rehabilitation process. Special attention is given to the triadic relationship structure (counselor - evaluator - client) of vocational evaluation in the state-federal system. Implications include: (a) reordering of the rehabilitation/evaluation process to focus on interpersonal relationships; (b) deemphasizing individual traits and abilities as predictors of rehabilitation decisions or outcomes; and (c) methods for observing and assessing the effects of systems of relationships on client, counselor, and evaluator behavior.

A Systemic Theory of Vocational Rehabilitation (Cottone, 1987) is a relational theory of vocational rehabilitation. Relationships, and not people, are the focus of study. In fact, the word systemic derives from the idea of a system being a network of relationships. Because relationships are best viewed in the context of the larger relational systems within which they exist, the term "systemic" is used in the name of the theory rather than "relational."

Some people are quite perturbed by the idea that relationships should be the focus of study and treatment in vocational rehabilitation. After all, the focus of study in vocational rehabilitation has historically been the individual with a disability. From an extreme systems theory perspective, however, people do not exist as individuals. To the extreme, people are simply perceptual phenomena for the transmission of relationship. According to systemic tenets, relationships are what is real and what controls us, even though relationships are invisible. After all, we are born of relationship, nurtured in relationship, and educated in relationships. We represent every relationship that preceded us genetically, as we at birth are linked to our mothers, fathers, and a social system that sustains us. Everything we do reflects the relationships that produced and maintain us.

According to a systemic theory of vocational rehabilitation, when we talk about vocational evaluation in the state-federal system, we are talking about assessment of an individual within a relational context. Specifically, the counselor - client relationship and the evaluator - client relationship are important. To understand the workings of vocational evaluation it is important to understand that relationships are quite distinct, but not necessarily unique to the individuals who play the roles. It is reasonable to conclude using systemic tenets that many counselor - client relationships and evaluator - client relationships operate under similar contraints, and that outcomes are predictable based on the rules and roles played out in the larger rehabilitation system, as opposed to what any one individual thinks or does. Consequently, counselors and evaluators have very little freedom, as they are caught in a web of relationships that affects what they do.

Figure 1 graphically depicts the counselor client relationship at the time

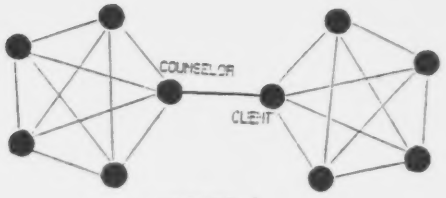

FIGURE 1

that a client's applies for services. To the left is the rehabilitation system, which is represented by the pentagon of which the counselor is a part. To the right is the client's system of significance, that is, the social network to which the client is socially linked. The counselor - client relationship represents a link between two systems, and according to basic systemic tenets, if the systems do not interlock well (a bad fit) then the relationship between the counselor and client will be strained. Bad fit, systemically, means that at the informal, nonverbal, and contextual levels, the individuals are repulsed rather than attracted. It would be the equivalent of asking a Klu Klux Klan member to cooperate with a black activist; even without verbal communication, the nonverbal behaviors could easily escalate in this situation into a disagreement or a fight. According to a systemic theory of vocational rehabilitation, a vocational evaluator will be called to play a homeostatic (balancing) role when the counselor and client systems do not interlock well. The evaluator's presence then changes the relational system from a dyad (counselor - client) to a triad (counselor - evaluator - client). See figure 2.

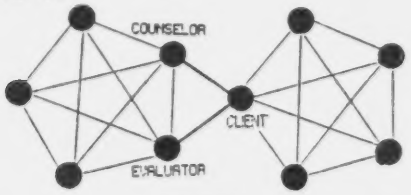

FIGURE 2

Triads are very important to a systemic theory of vocational rehabilitation, because triads allow for rejection of a client based on a two against one configuration, that is the counselor and evaluator against the client. What this means is that clients can be potentially scapegoated if they do not play by social rules consistent with the rehabilitation delivery system. Theoretically, there are only two possible balanced outcomes within the triadic vocational evaluation configuration in the state-federal system: (a) continuing rehabilitation; or (b) scapegoating (see Cottone & Cottone, 1986, for the theoretical reasons this is so). What this means is that clients are primarily screened-in or screened-out of rehabilitation primarily for social as opposed to vocational capability reasons.

If vocational evaluators, on the other hand, are too accommodating of clients that continually break the social rules of the rehabilitation system, the evaluators do so at the risk of being scapegoated by the counselors who are their referral sources. Evaluators act in order to survive in the rehabilitation system, where survival is probably better understood as how well they follow the rules and regulations of the system to which they are dependently linked.

Given these constraints, and understanding that relationships are invisible, how does this operationalize at the level of vocational evaluation in the state federal vocational rehabilitation system. Well first, it must be understood relationships are best reflected in interpersonal communication, and it is the informal, nonverbal, and contextual messages that make the relationship clear. For example, in a college classroom, a college professor stands before his or her class at a lecturn, professing on a subject, while students diligently sit attentively taking notes as they seek degrees to help them survive in an education-crazed culture. What is important from a systems perspective in this scenario is that most students know how to play their role without someone explicitly stating the rules. They know they can ask intelligent questions, but they know that they must not openly challenge a competent professor, lest they challenge the authority so clearly communicated in the nonverbal and contextual cues. College professor often characterize the perfect student as the quiet student who asks intelligent questions in a timely way, who makes eye contact, and who aces every test. The worst thing that can happen in a classroom is to have a socially inept student who continually ignores the nonverbal and contextual cues and upsets the balance in the classroom. Unless the rest of the class helps to scapegoat that socially inept person nonverbally, the semester will probably turn into an uncomfortable one for the involved individuals. A real problem arises when the inept person sits in the front row, where the nonverbal class messages are not noticeable, or when a client is so socially disturbed that he or she does not understand the social cues.

As humans we are very adept at recognizing social deviance, unless we are socially inept ourselves. In fact, I have hypothesized that the vocational rehabilitation system is nothing but a massive screening institution for screening social deviance. Given a

socially skilled client, a disability that does not affect social interaction or only affects it minimally, and a person who has a minimum level of vocational competence for successful completion of job tasks, and I will give you a 26 closure. Give me 100 socially inept clients, clients who have body odor, ignore rules of proxemics when addressing others, dress in bad taste, and continually challenge what is socially acceptable, and, no matter what their level of skill, I predict 99 of them will either not get employment or they will not maintain employment over 6 months. In fact, research shows that the reasons that people lose jobs most usually involve social factors. Try to fire a professor because he or she is incompetent in the classroom ... almost impossible. But its easier to get rid of the professor who is the social deviant, who breaks the rules of social decorum with students, or who is a constant pain in the neck to his or her colleagues. That person will be chased out ... sent to academic Siberia, so to speak.

I am convinced that vocational evaluators are not evaluating vocational competence. I am convinced that they, for the most part, are simply judging clients on their social abilities within a vocational context and screening in the most socially skilled. Those that are not socially skilled are recommended for work adjustment. In fact, with several of my colleagues I published a paper last year (Cottone, Grelle & Wilson, 1988) which supported the contention that the decisions of vocational evaluators working with psychiatric clients could be more accurately judged on the basis of social interpersonal evidence in their reports than on the psychological/vocational evidence in reports. In effect, evaluators spend hours and hours testing clients with "objective tests," and then when it comes down to the "nitty gritty," they recommend training/job placement for those with social skill that played by the rules, while recommending work adjustment training or case closure for those who where socially inept or broke the rules. Pity the poor client who doesn't learn after being sent to work adjustment (purgatory) to play by the rules. For the system will tell him or her where to go!

It is my contention that beyond some minimum level of competence at job related tasks, it is social/interpersonal skill that predominates in the work place. And since most vocational evaluators work with clients at the lower end of the skill spectrum (most college bound students are not evaluated), social/interpersonal skill should be a major concern and the focus of evaluation. Think of the money that can be saved in the state-federal system if evaluators would focus on what they are primarily evaluating anyway! Why is all this testing needed when in all probability it plays a secondary role in final decision making? Let's begin to look at how clients fit socially in the network of relations to which they aspire. Let's begin to focus on training individuals to understand social/interpersonal rules and to follow reasonable social standards? Let's stop masquerading a massive social screening system with a psychological and vocational assessment process.

Discussion

The implications of a systemic theory of vocational rehabilitation on vocational evaluation are as follows. For greater detail on these issues see the article by Cottone and Cottone (1986) which addresses the same issues.

1. A systemic theory of vocational rehabilitation provides a different perspective of vocational evaluation. This perspective is more holistic than the reductionistic psychomedical paradigm, because it accounts for influence of networks of relationships on behavior.

2. The focus of attention in rehabilitation changes from individuals to relationships. Systemically, people are not analyzed, but the relationships between them are analyzed. For example, clients who establish negative relationships with their counselors, who additionally are not able to show clear evidence of social capability and socially acceptable goals, will likely be scapegoated. Accordingly, the rehabilitation system will maintain itself at the expense of clients who severely deviate from social standards.

3. Since social relationship skills take precedence, evaluators should define social relationship skills at an early phase of the evaluation process. The present emphasis on results of psychological testing and work sampling is vocational evaluation's greatest deception. Unless the client can demonstrate the strong potential for social relationship skill in the early phase of the vocational evaluation process, the assessment of other skills is a wasted effort. Vocational evaluators have much to learn from marital and family therapists in this regard, since marital and family therapists have been developing ways to assess relationships within counseling settings.

4. Psychological terms, such as "motivation," need to be redefined from a systemic viewpoint. For example, motivation, within the framework of a systemic theory of rehabilitation, is the degree of engagement of two interacting systems, as viewed from the perspective of one of the systems. Hence, "motivation" is placed in a relational context. This is also true of skills or traits (such as intelligence). Since traits are measured in relationships, they are not devoid of relational influences.

5. Vocational evaluators must learn ways to affect the counselor - client relationship and the client's relationships with any systems of influence that do not interlock well with the rehabilitation system. Methods must also be developed to analyze objectively the systemic influences of both the client and rehabilitation systems. Again, evaluators would be served well by studying developments in the field of marital and family therapy for guidance on these issues.

6. Vocational evaluators should thoroughly define the critical social relationship skills necessary for obtaining and maintaining employment. Specific criteria and procedures should be developed for assessing a client's capability to perform the critical social relationship skills necessary for obtaining and maintaining employment. Techniques for social skills training (e.g., L'Abate & Milan, 1985) should play a prominent role in vocational evaluation and, subsequently, work adjustment training.

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WHAT WAT IS AND WHAT WAT IS NOT

KAREN PELL AYELLA

ABSTRACT

Work adjustment training, condensed to the acronym WAT, has been a critical element of rehabilitation services for many years. With the shift of policy and funding to community based services, WAT has been labelled as one of several "dinosaurs" of rehabilitation. Its history has been facility-linked, so that it is easy to dismiss its theories, principles, and practices as inappropriate for contemporary vocational rehabilitation efforts.

From a brief review of the history of work adjustment, this commentary discusses the generic elements of work adjustment that apply to all services which adjust persons to work. These include behavior management, task analysis, job accomodation and restructuring, learning assessment, and work management. Their uniqueness in rehabilitation service delivery is presented, as well as the identification of persons best able to benefit from adjustment services. Strategies and modalities of "best practice" are presented, with greatest emphasis upon describing those persons best able and prepared to practice.

Conclusions are based upon field observations and discussions with practitioners. Questions are raised to challenge the audience to consider the future implications of this important service to persons with disabilities.

The definition of work adjustment which was generated by the participants of the Tenth Institute on Rehabilitation Services in 1972 has served the profession well for the last sixteen years. The definition bears repetition at this time of reappraisal and reinterpretation of rehabilitation services. Work adjustment is a

> "systematic treatment or training process utilizing individual and group work or work related activities to assist individuals to understand the meaning, value, and demands of work, to modify or develop attitudes, personal characteristics and work behaviors, and to develop functional capacity to assist the client to his optimal level of vocational development" (Tenth Institute, 1971).

An informal survey conducted by this author of practitioners and students in master's level rehabilitation courses support the viability of work adjustment as a distinct component in the successful rehabilitation of disabled individuals. It remains the primary treatment recommended for disabled individuals who are not yet ready to enter the work force. However, with the documented success of related services such as work hardening and supported employment, it is time, and it is hoped not too late, to reexamine several aspects of work adjustment. These include identification of those features which make it unique, those persons who are best able to benefit from its services, those strategies and modalities which have proven to be most successful, and those persons who are best able and prepared to practice work adjustment. From such an appraisal of the profession, it is possible to determine the "state of the art" and plan a course of action for practitioners and researchers, those persons who identify with and support this profession. It is hoped that such a plan will strengthen and facilitate the development of this field to ensure its continued presence as a service option for rehabilitation services to individuals in the years ahead.

From an historical perspective, work adjustment was identified with rehabilitation during the '50s and '60s along with the rehabilitation facility movement. At the same time federal legislation authorized environments where

this service could be provided. Sawyer (1988) and Pruitt (1983, 1988) both have recounted the history of the profession. They trace the roots of work adjustment from occupational therapy, learning theory, and behavioral psychology.

Currently, the tendency is to assume that the "new" dimensions of work hardening and supported employment integrate easily into work adjustment services. Yet, it is important to remember that the terminology, the principles of practice, and the professionals who support it have been, are, and, it can be argued, will remain linked to vocational rehabilitation. That linkage implies strong ties to the public funding streams, to clientele linked to that service delivery system, and to legislative mandates which shift according to federal initiatives and priorities. Such linkages can create major barriers to a general acceptance and understanding that work adjustment is a generic service common to all programs which target the adjustment of persons to work.

UNIQUE FEATURES OF WORK ADJUSTMENT

The fundamental elements of work adjustment upon which practitioners in work hardening, supported employment and "traditional" work adjustment services agree are: 1) that work adjustment is an individualized training process that is ongoing and occurs over time; 2) that the emphasis is upon treatment of work behaviors more so than skill deficits, which distinguishes it from occupational skill training; 3) that the modality of work or work related activities is a unique feature that distinguishes work adjustment from other adjustment services, such as social or community adjustment activities; and 4) that it is goal-oriented, in that the treatment and training should target specific behaviors and prepare the individual for work or work training, such as a formal skills training program.

It is important to note that these features are not setting-specific (medical, rehabilitation, community-based, or educational) nor funding-linked. The primary emphasis is upon the person and work, be it a specific job or more general work experiences. These two key elements form the foundation of the Minnesota Theory of Work Adjustment developed by Lofquist and Dawis (1967), which postulates that the congruence of job satisfaction and job satsifactoriness ensures job tenure. This means that when a person's needs are reinforced by a job and that job's demands are met by the person's efforts, then there is balance and longevity on that job.

The goal of this model, and of all work adjustment programming, should equate job success with job tenure (Pruitt, 1988, p. 69). Pruitt emphasizes that the only successful outcome of such services is successful competitive employment. His voice joins those who support both work hardening and supported employment. They, too, maintain that entry or return to the competitive labor market is the only successful outcome in vocational rehabilitation.

This pragmatic outcome may be difficult to accept and promote for proponents of a more life enriching interpretation of rehabilitation in general, and adjustment services specifically. The language of work in the title "work adjustment" must target work as the goal, which becomes the positive or desired outcome of work adjustment services. Personal, social, educational, and community adjustments are important as an extension of work adjustment, in that success in any or all of those areas enhances success in work adjustment and visa versa. However, success in any one or all of those areas without success on the job is less than work adjustment, and should be labelled as something else. It may be called psycho-social adjustment, community adjustment, or avocational adjustment. The goals are different. Work may be a treatment intervention, a modality of change, a classroom experience. However, if it is not the goal, it is not work adjustment.

Yet, the caution is not to equate work adjustment with an expanded concept of job matching. Work adjustment is not matching one person to one job. Comprehensive work adjustment should include dimensions of career development, self appraisal, interest and job matching, and job seeking skills training to ensure that an individual can enter and move within the labor market. It is ludicrous to believe that all individuals with disabilities remain in the same positions for their working lives, that they do not aspire to loftier positions, that they do not seek to change career paths at some point, and that they want to return to formal rehabilitation services to achieve these career moves.

The onus is upon the work adjustment professional to teach the skills which can empower an individual vocationally throughout his or her working career. It is incumbent upon the profession to expand the scope of the outcome measures to include those that ensure "career adjustment," meaning a measure of job(s) success over time. Research should be undertaken which is longintudinal and looks at job satisfaction and job satisfactoriness in broader terms than tenure on one job.

INDIVIDUAL BENEFITS FROM WORK ADJUSTMENT

It is common to identify clientele for a particular service initially by matching individual service needs to the dimensions of the service available. Over time, the individuality of that person and service is generalized to setting and funding streams. It appears that all persons served by a particular program get the same service whether they need it or not. Plans identify and target the same behaviors, treatment involves the same interventions, and outcomes follow the same patterns. Do all persons with developmental disabilities seek, enjoy, and feel rewarded by work in food and janitorial services and horticulture? Too often, it is the dimensions of the work adjustment program (its staff expertise, its in-house and community vocational resources, and its referral sources) which shape the work adjustment service, and not the work adjustment needs of the individual.

Work adjustment suffers at present from identity problems. Matheson (1988) accurately describes work adjustment as "focused on providing services to individuals with developmental disabilities.....to assist these disabled individuals to adjust to a work setting and accept the values and interpersonal demands of such a circumstance" (p. 73). There was and is little, if no, acceptance by persons with other disabling conditions to being served in a setting with developmentally disabled clientele. Their work adjustment needs may be the same, but there is great resistance to being served in the same environment.

One commmon explanation for this is that persons served in work hardening programs see their disabling conditions as temporary and as not handicapping. They do not identify their situation or their potential with developmentally disabled individuals. Work adjustment environments, especially sheltered ones, frequently have tolerated and even reinforced behaviors and work attitudes that are not consistent with those in competitive settings. The impact upon the individual can be detrimental and handicapping. This can be vividly demonstrated in an educational setting when one compares an individual from a mainstreamed environment and an individual from a self-contained classroom, when both have the same diagnosis. It is remarkable to this author who has observed the differences in performance as affected by self-perception and self-identity/image; further, there has been mirroring of inappropriate or maladaptive behaviors of others. The impact upon the vocational potential of each is significant.

These issues of isolation and non-integration have compelled persons with developmental disabilities to advocate for supported employment options in order to integrate into work settings. The irony is that integration of disabled and non-disabled persons is taking place not in treatment environments but at work sites. The risk is that now persons with developmental disabilities deal with many work adjustment issues at the worksite, where tolerances for deviance in work performance and behavior are minimal. Reactions by co-workers may result in different but potentially more severe and less tangible feelings of isolation than persons felt in sheltered environments.

A second irony is that traditional work adjustment services were developed over the years for the mild to moderately disabled. Yet, due to a number of factors, these individuals have a low priority at present for funding and support. Those persons ranking high in priority for services do not naturally fit into the historical models. This "retooling" dilemma can be compared to the traditional classroom teaching strategy of "teaching to the middle." In that strategy, the extremes are less adequately served, because the content either exceeds or falls short of student capabilities. Applying this concept to work adjustment, those "middle" persons appropriate for traditional work adjustment services are dwindling in number. At one extreme are severely disabled individuals, who were not served successfully (again measuring success as competitive job placement). They promoted the supported employment placement model, which subsumes work adjustment treatment and training elements into the role of the job coach, who addresses them at the job site. The other extreme, which includes the industrially injured and the economically and educationally disadvantaged, do not identify with a severely disabled population and have found other strategies to adjust to work. For the industrially injured, work hardening as provided in job-specific environments is the preferred path to return to work.

These needs are not mutually exclusive, in their delivery or in their treatment environments. The traditional models of work adjustment services should not be so rigid that new applications in new settings cannot be explored and developed. It is important to ensure that client needs "drive" the service delivery and not other factors. If adjustment to work is the goal, work environments (or simulations thereof) should be the setting for the services. Within these settings, individualized planning based upon client needs should determine the specific elements of work adjustment.

Idealistically there are a variety of persons who could benefit from the generic model of work adjustment based on the Minnesota Theory. A service model which is customized to individual need and which is sophisticated in its structure and staffing pattern, is very costly in equipment, manpower, and time, as Matheson laments (1988). Yet, such quality in practice needs to be recognized and reinforced by performance standards from funding sources and by credentialing bodies and other regulatory agencies. For work adjustment to enhance its credibility, its standards and outcomes must be high and must be closely monitored.

SUCCESSFUL STRATEGIES AND TREATMENT MODALITIES

There remains a paucity of research and documentation of work adjustment techniques. This absence is reported by Sawyer and Morgan in 1981 and remains unaddressed eight years later, when the profession of work adjustment is in a period of reappraisal. The VEWAA Bulletin, the primary publication for work adjustment within the rehabilitation community, continues to publish articles on the process and theoretical bases of work adjustment; there is a distinct lack of articles on research as to quality and effectiveness of process or techniques.

Persons charged with providing work adjustment services continue to report that they struggle with identification and selection of appropriate and effective strategies and treatments to meet the needs of their clients. Too often, when a client is successful in work adjustment, it is not easy to isolate and replicate those effective strategies to other clients and other situations.

The "shotgun approach" to work adjustment described by Pruitt (1983) as an historical antecedent is in practice with minor modification today. The philosophy that "work and work alone was sufficient to change unproductive clients into productive workers" (p. 13) prevailed. Sadly, work still is that "panacea" today in many environments, both sheltered and competitive. There are reports of disabled persons placed in jobs, where the adjustment objective is to teach the job process and not to address interests, behaviors, or values of the worker. When the career development attributes of the worker are not considered in decisions for work and work adjustment, inequity results.

Sawyer and Morgan (1981) focused on five work adjustment techniques which fit into a comprehensive approach to work adjustment services. These are: individual counseling; assertive training; biofeedback; modeling; and microtraining. These five build on the parameters identified by Esser in 1977, which include counseling (both group and individual); behavior change procedures; modeling; planned work experiences; and instruction (both group and individual). They also apply to the critical job site training responsibilities, as described in The Supported Work Model of Competitive Employment for Citizens with Severe Handicaps: A Guide for Job Trainers (Moon, Goodall, Barcus, and Brooke, 1986). Job trainer responsibilities are: assessing situation and applying behavior change intervention strategies (pp. 98-99); teaching self-reinforcement techniques (p. 79); and teaching job skills through analysis, reinforcement schedules, performance records, prompting, and fading (pp. 67-75).

These related techniques in teaching, training, and treatment, as Sawyer and Morgan (1981) summarized them, appear in the literature as generic over time, setting, and service needs. Such consistency corroborates their fundamental role and success in work adjustment services. If these techniques are fundamental to the profession, then these should be the fundamental "tools" of all professionals practicing in the field.

A preliminary study of training needs of work adjustment personnel (Gregory, Whitlow, Levine, and Wasmuth, 1982) indicated that client observation was the one technique about which all respondents indicated familiarity or knowledge. Group processes, especially using peers, ranked high (97%) in familiarity and would involve counseling skills, although counseling did not appear as an independently labelled technique. Behavior change strategies also ranked high, at 98%, as did on-the-job training. Specific learning strategies, such as pacing, job redesign, and work place layout ranked much lower in familiarity, suggesting that knowledge of sophisticated job training strategies was weak and that these professional respondents used modeling and other more simplistic techniques to teach job tasks to clients.

There is a gap between the fundamental techniques identified above and those used in practice, as reported by the 1982 study and the more recent supported employment literature. This gap is widening based on the role and training of the practitioner. A job coach or employment specialist as described in the literature (Moon et al, 1986) is not the same as a work adjustment specialist as defined by the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES). The same may be said for several of the professionals on

the team described by Matheson (1988) in his work hardening model. Specifically, there are physical therapists, occupational therapists, psychologists, and even vocational specialists who do not have the full range of treatment, training and teaching skills needed for work adjustment.

PERSONS BEST ABLE AND PREPARED TO PRACTICE WORK ADJUSTMENT

There is a dichotomy in this profession in practice. Work adjustment practitioners are concentrated at two ends of the spectrum. There are persons practicing who are high school educated, trained briefly and usually on the job as production supervisors and employment specialists, who perform "lead worker" type roles. By that, it is meant that these persons are responsible to perform work assigned to their disabled clientele as well as to teach that work to them. These persons have been employed in sheltered facilities for many years and now have colleagues who perform the same tasks and responsibilities at competitive job sites.

At the other end of the spectrum are the professional level work adjustment practitioners; those persons who have achieved at minimum bachelor's level educational goals and who frequently have master's degrees in counseling, education, and related human service occupations. These individuals, when queried informally by this author, identify themselves as counselors and rehabilitation specialists. They ally themselves with counselor-related professional organizations, pursue certification and continuing education opportunities in these areas, and do not recognize their skills as particular to work adjustment services.

Such a dichotomy weakens the profession. A person who invests time, money, and personal energy into pursuit of professional standing through education, board certification, and maintenance of that standing, does not want to be viewed as performing similar functions to a high school graduate. Such an allegiance also lowers the wages for the profession as a whole, because the economy will bear the cheaper practitioner if the same outcomes are achieved.

Work adjustment competencies have been researched (Pruitt, 1973, Coffey and Ellien 1979, Menz (Ed) 1984). In early 1989, the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES) will be undertaking a Roles and Functions Study for Work Adjustment Specialists to refine the Knowledge and Performance Areas currently outlined in their certification process for Work Adjustment Specialists. Current Knowledge and Performance areas are: Functional Aspects of Disability; Situational Assessment; Learning Style; Behavior Managment; Individualized Work Adjustment Planning; Work Management; Task Analysis; Measuring and Documenting Progress; Functional Living Skills; Job Modification and Restructuring of the Work Environment; Community-Based Vocational Training; and Social Aspects of Disability.

The scope of skills required in these Knowledge and Performance areas far exceeds the level of formal training and the sophistication of on-the-job training of the high school educated practitioner described above. Similarly, the specificity of these skills demands of the master's level practitioner more work site applications than counselors or educators would encounter in training in their respective fields.

The training opportunities for work adjustment specialists are discouraging. The University of Wisconsin-Stout maintains the only master's level degree program in work adjustment. There are courses taught in work adjustment in several vocational evaluation master's level programs. Continuing education opportunities are offered sporadically in most RSA regions of the country. The number of certified work adjustment specialists appears to have peaked at approximately 500 persons with the prospect for increasing those numbers through certification and/or recertification not promising given the present credentialing structure.

This training crisis holds several implications:

1. that there exists little if any federal mandate and appropriation for training in this area (specifically work adjustment), and, it is possible, the perception of policy makers that little is needed;
2. that the lack of formal preservice training programs over the years has limited the amount of research, its application, and transmittal of skills, the outcome of which, often, establishes the body of knowledge and professional identity needed to foster the development of work adjustment as a legitimate service system;
3. that personnel providing services in facilities and in the community do not describe their skills and job functions in the language of traditional "work adjustment" services nor do they ally with that profession's rubric;
4. that this inconsistency with language to describe and identify work adjustment leads to confusion as to "what" it actually is and leads to frustation by practitioners attempting to define and generate support for the profession;
5. that persons who initially sought training/education in work adjustment and

that pursued certification in that specialty appear not to identify with that profession or certification process as such any longer.

SUGGESTIONS FOR PROFESSIONAL RENEWAL

The time is now for renewal, and as with any renewal effort, there needs to be a cause, be it a victory or a crisis around which to rally. It is the expressed hope of many who have identified with work adjustment over the years that the cause be one of promise and of growth toward better practices for those served. This cause needs to be identified, promoted, and led by a charismatic force of committed individuals whose goal is to preserve this fundamental vocational service. While preserving the service, the force of change and renewal should also foster the refinement and adaptation of the service to meet the complex needs of our ever growing and more diverse population of individuals in need. This force must advocate for more funding and federal support, needs to promote the generalizability of these specialized skills to all work environments for any and all persons who struggle to adjust to the meaning, value and demands of the workplace, as demonstrated in attitude, behaviors, and functional capacities.

When the complex needs of disabled individuals are considered, there is a body of knowledge and a discrete set of skills that practitioners need to have in order to serve this special subset of the workforce effectively. Those skills need to be researched more thoroughly, and disseminated to pracititioners more formally. Practitioners need to be rewarded financially and afforded the professional dignity that their level of expertise demands. The certification process for work adjustment professionals needs to be reviewed to understand more fully the role of this process in the profession as expressed by its practitioners. Consideration should be given to a hierarchical certification process for practitioners, recognizing that certain elements of work adjustment are provided by persons with educational backgrounds that range from high school completion to graduate level degrees. Skills in planning, formal reporting, and more complex behavior and teaching management strategies should be performed by persons trained formally and with supervised internship experiences in those areas.

It is most important to begin this process of review, analysis, and growth with the commitment that work adjustment is a viable and necessary element of the constellation of services provided to persons seeking work entry, return, and tenure.

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FOUR PERSPECTIVES OF VOCATIONAL EVALUATION

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Abstract

The identity and scope of the vocational evaluation profession is in a state of flux. Vocational evaluation is no longer solely identified with rehabilitation facilities for mentally handicapped adults. Four different perspectives of vocational evaluation is provided from practitioners in the traditional rehabilitation facility and private practice, school-based, school psychology, and occupational therapy perspective.

The purpose of this general session was to provide an opportunity for various perspectives regarding the profession and practice of vocational evaluation to be presented. Noted practitioners from four different professions provided their opinions as to what is vocational evaluation and what is unique regarding vocational evaluation in that particular profession. The general session presenters included: Linda Mathias Kaskel represented the traditional rehabilitation facility and private practice perspective of vocational evaluation. Pam LeConte discussed school-based vocational evaluation. The school psychologist perspective of vocational evaluation was presented by Ed Levinson. Carolyn Baum represented the occupational therapy perspective of vocational evaluation. Each of these panelists had an opportunity to discuss their perspectives of vocational evaluation. Following, the audience was asked to identify with one of the perspectives and to divide into small groups. The purpose of the small groups was to allow the audience an opportunity to contribute to the presenter's comments and to help bring to closure the issues regarding vocational evaluation from the particular perspectives.

It should be noted that the term vocational evaluation will be used generically throughout this paper. It can be interchanged for the term vocational assessment or vocational appraisal unless specific reference to these terms is provided.

As defined by the VEWAA Glossary (1988), vocational evaluation is a comprehensive process that systematically uses work, either real or simulated, as the focal point for assessment and vocational exploration, the purpose of which is to assist individuals in vocational development. Vocational evaluation incorporates medical, psychological, social, vocational, educational, cultural, and economic data into the process to attain the goals of evaluation. Also defined in the VEWAA Glossary (1988) is the term vocational assessment. Vocational assessment is the comprehensive process conducted over a period of time, usually involving a multidisciplinary team. . . with the purpose of identifying individual characteristics, education, training and

placement needs, serving as the basis for planning an individual's educational program and which provides the individual with insight into vocational potential.

Rehabilitation Facility/Private Practice

Vocational evaluation is traditionally associated with vocational rehabilitation and is considered the initial step in the rehabilitation/habilitation of adults with disabilities. Three components are usually identified with the rehabilitation facility vocational evaluation. These include a work efficiency rating, usually obtained through a production analysis on various types of work. Situational assessment is included to provide information regarding pre-vocational skills. Vocational aptitude or skills assessment is commonly conducted through the use of standardized, professional work samples and aptitude tests.

The purpose of vocational evaluation in the rehabilitation facility is to determine the vocational potential and independent living skills of handicapped adults. Oftentimes, it is an issue of teaching pre-vocational and vocational skills to individuals who have never been in a work environment, thus it is a habilitation rather than a rehabilitation environment. Further, exposure to jobs and development of vocational preferences is included.

Private practice vocational evaluation facilities are generally profit oriented facilities compared to the not-for-profit status of the traditional rehabilitation facility. The purpose of private practice vocational evaluation usually focuses on the handicapped individual's potential to return to work. Consumers participating in this type of program have usually been competitively employed and have incurred some type of injury. The feasibility of returning to pre-injury employment is the key issue addressed in these vocational evaluations.

Techniques used in private practice vocational evaluation center around the determination of physical capacities, transferability of skills, and aptitude assessment.

As the scope and purpose of the rehabilitation facility vocational evaluation is more comprehensive, the time spent in this program usually ranges from one to eight weeks. Whereas, the more focused nature of the private practice vocational evaluation, the profit motive, and the consumer's situation mandates a more rapid, one to five day, vocational evaluation. A group process is oftentimes the format in a rehabilitation facility vocational evaluation program, with up to twelve consumers in the process at any point in time. The structured nature of private practice vocational evaluation demands much more individualized groups. Up to three consumers might be assigned to a vocational evaluator at a time.

Credentials vary somewhat for individuals in these two settings. Rehabilitation facilities that meet the standards of the Commission on Accreditation of Rehabilitation Facilities (CARF) usually employ vocational evaluators that meet the certification of the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES). Private practice facilities will employ individuals with generally more extensive experience, advanced degrees, and additional certifications in areas such as rehabilitation counseling.

The audience discussion focused on the critical communication between the vocational evaluator and the referral source. Specific referral questions are key to focusing and individualizing the vocational evaluation in either the rehabilitation facility or private practice situation. The audience felt that one certifying body of standards should be acknowledged and required. Finally, the semantics between the terms vocational evaluation and vocational assessment should be minimized in reference to the practice of "vocational evaluation" in these two situations. In other situations, i.e., education environments, the difference between these terms is meaningful.

School-Based

The practice of vocational education began to appear in schools in the late 1960's. The 1984 Vocational Education Amendments, the Carl Perkins Act, required that the concept of vocational evaluation be implemented in education and be made available to all

identified handicapped and disadvantaged students prior to enrollment into any vocational or work-study program.

In the school-based environment, the difference between vocational evaluation and vocational assessment is of importance. As noted above, the purpose of vocational evaluation is to assist in the individual's vocational development. Whereas, the purpose of vocational assessment is to serve as a basis for planning an individual's educational program. Although the process and techniques are similar, the purpose is different. In vocational evaluation the outcome is to determine the consumer's ability to be employed or re-employed at various levels ranging from a work activity to a competitive level. Whereas, the outcome of vocational assessment is to determine the most appropriate vocational training program within the parameters of education. A key difference is the availability of a structured work site(s) to utilize to obtain a work efficiency rating(s).

Techniques utilized in vocational assessment focus on the exposure of occupations, identification of vocational interests, identification of pre-vocational skills, and aptitude assessments.

The scope of vocational assessments in schools varies considerably from state to state. Standardization is lacking due to nonspecific federal requirements. The scope of vocational assessments ranges from vocational screening all the way to a full comprehensive vocational evaluation. The background of the individual employed to complete the vocational assessment also varies. Again, much variance is found among state standards. In some states, vocational assessments are provided via a contractual arrangement with a local rehabilitation facility. In other states, funded vocational assessment units have been developed in the schools and standardized programs are in place and reviewed on a regular basis. In still other states, inconsistent or non-existent programs are identified. Less than one percent of the individuals employed in vocational assessment programs are certified vocational evaluators through CCWAVES.

Vocational assessment in schools is part of the intervention strategy. School-based vocational assessment has moved away from the traditional rehabilitation model of vocational evaluation. Professionals employed in school-based vocational assessment programs have had to acquire knowledge of special education and vocational educational program curricula, special education services, student and parents rights, adult service systems, and the world of work in general. The vocational assessor impowers the student to make vocational decisions, understand his/her own skills and limitations, and to learn how to be a responsible worker.

The audience discussion culminated in the statement that all handicapped and disadvantaged students can benefit from and should receive a vocational assessment. However, not all of these students need a comprehensive vocational evaluation.

School Psychology

There are pragmatic and practical reasons for the school psychologist's involvement in vocational endeavors. Many definitions of vocational assessment, such as that proposed by VEWAA, actually incorporate a psychological component. It is a well accepted notion that intelligence test data, academic achievement test data, personality assessment data, and adaptive behavior data all have relevance for vocational programming.

Although school psychologists perform a variety of roles in the schools, a major responsibility is the completion of psychoeducational evaluations of handicapped students. It is via this assessment role that school psychologists can assist in the completion of school-based vocational assessments. Much of the data gleaned from a traditional psychoeducational evaluation has vocational relevance. For example, intelligence test data can be used to assist in determining the degree to which an individual might attain success in a given vocational training program, and the degree to which certain jobs which emanate from training in a given program may be realistic vocational options for the client. Research conducted by Heinlein (1987), has indicated that the Wechsler Intelligence Scale is similar to the factor structure

of some aptitude tests. This data supports such use of intelligence test data, and also suggests that, in some ways, intelligence test data gleaned by school psychologists may be used in the same way as traditional aptitude test data. Future research of this nature may eventually support the substitution of aptitude test data with intelligence test data, thereby eliminating the need for expensive and time consuming aptitude assessment. Since most students participating in vocational assessment have already been tested with intelligence tests, such substitution will streamline the vocational assessment process, and render the process more efficient. Because many frequently used intelligence tests are superior to aptitude tests in regard to psychometric and technical characteristics, such substitution may also serve to increase the reliability and validity of the overall assessment process. At the present time it is premature to substitute aptitude data with intelligence test data, and both should continue to be considered in vocational assessments.

In addition to psychoeducational skills, consultation and intervention skills can be applied by the school psychologist to facilitate the vocational assessment process. Psychologists can be requested to consult with vocational assessors concerning appropriate assessment instruments and strategies to employ with a particular student, and the degree to which intellectual and social/emotional difficulties may affect a student's training or employability.

The development and implementation of school-based vocational assessment programs involve the selections, use, and interpretation of vocational tests. As Egerman and Gilbert (1969) have previously suggested, those professionals frequently entrusted with this responsibility have had limited training in psychology, and are oftentimes ill-prepared to deal with the psychometric and measurement issues that development and implementation of an assessment program requires. In contrast, school psychologists are well trained in assessment methodology, and knowledgeable about psychometric and measurement issues. Consequently, involvement of the school psychologist in the establishment and implementation of a vocational assessment program can reduce the risk of inappropriate selection, use, and interpretation of assessment instuments, and increase the overall validity of the vocational assessment process.

Audience discussion indicated that of those individuals involved with school-based assessment, the majority do have involvement with the school psychologist. Further, the vocational assessment should actually be considered a component of the multifactor assessment. The vocational assessor should be a member of the multidisciplinary team. The involvement of the school psychologist in the vocational assessment process can provide the vocational assessor with time to work with additional students or to expand the scope of the assessments.

The school psychologist's expertise in psychometric measurement should be utilized by the staff completing the school-based vocational assessments. However, in rehabilitation facilities the on-site availability of the psychologist is often lacking. Thus the support role is difficult to obtain.

Occupational Therapy

The world of work and technology has changed. Along with these changes, it has become economically feasible for the injured worker to be required to complete a physical rehabilitation program. The technological advancements in assessment, work capacity, and work hardening programs have enabled the profession of occupational therapy to offer a valuable service to employers. Workman's compensation and personal injury claims create a market for medical and vocational rehabilitation programs to return these workers to the employment site. Rehabilitation is a valued and requested entity because industry profits are being compromised due to the exorbitant cost of long-term healthcare programs.

Occupational therapy functions in a dual role in the rehabilitation of the injured worker. The occupational therapist initially serves as an assessment specialist in reviewing the worker's physical performance dysfunction. It is in this capacity that the professions of occupational therapy and vocational evaluation can become confused. Occupational therapy also serves

as an intervention strategy. Functioning in a direct service role, occupational therapy moves from an assessment technique to a facilitator in the rehabilitation process. Therefore, occupational therapy can be viewed as a developmental process assisting the injured worker throughout the rehabilitation and return to work process.

The assessment component in the physical rehabilitation process should be completed by an interdisciplinary assessment team. Both the occupational therapist and the vocational evaluator along with various other professionals should be members of the assessment team. Both professions contribute to the interdisciplinary report and recommendations. Whereas, the occupational therapist may continue to work with the injured worker, the vocational evaluator does not usually maintain involvement throughout the remediation process.

Along with the increased demand for occupational therapy services comes the expectation that these services will be provided on a time-limited basis. Healthcare requirements have mandated very specific time frames in which occupational therapy services are to be provided. The inflexibility of healthcare regulations act in opposition to the individualized service concepts which are mandated in the vocational rehabilitation policies and practices. A blend of philosophical differences is needed between physical/vocational rehabilitation and public healthcare programs and standards.

The audience discussion focused on the inconsistency between the rehabilitation concepts and the healthcare regulations. Bridging this gap in philosophies is a major step which does need to be addressed. Education of the financial agents as to the individualization of rehabilitation services is needed.

There still exists a need for communication and mutual understanding regarding the joint roles that the occupational therapist and the vocational evaluator play in the vocational rehabilitation process. Joint publications between occupational therapists and vocational evaluators to foster communication between the two professions is needed. Functioning as equally contributing members to the interdisciplinary assessment team will foster mutual understanding of the other's role and expertise to be offered.

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Marketing the Non-Profit Evaluation Service to Private Industry

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Abstract: As the non profit evaluation unit begins to broaden its referral base looking for new sources of revenue, it should look beyond the old reliable (or in some cases, unreliable) agencies to private sector industry. Reaganomics has necessitated a cutback in public sector monies available for services such as evaluation or work adjustment and for the non-profit evaluation unit which has traditionally depended on these funds, the result can be disastrous. Vocational evaluators possess a unique knowledge base that the private sector could find very useful, but into which it has not consistently tapped. The problem appears to be one of communication. The non-profit evaluation unit must aggressively market their services in a style and with language the private sector can relate to and understand. By dropping the "bleeding heart social worker" image and adopting a polished, business-like attitude emphasizing the "bottom line" in our presentations, local business will be more willing to explore and hopefully utilize our services. This paper will present effective ways to initially communicate with industry, typical services an evaluation unit can offer, how to present your services, what the pitfalls are and how to avoid them, and report writing for industry

The broad knowledge base of a Vocational Evaluator is oftentimes not appreciated, sometimes not even by the evaluator. If as evaluators, we are working with the same population month after month, we may get into a rut and think "anybody can do this, it's just common sense!" At these times it's important to step back and take a look at the skills possessed by most evaluators. Once these skills have been defined and outlined it will be easier to see how they can apply to needs outside the traditional referral sources, specifically private business and industry.

The most obvious skill possessed by all evaluators is knowledge of tests and measures and how to most appropriately and ethically apply them. Evaluators have knowledge of validity, standardization, and resources for tests and measures. Also most evaluation units contain a wide variety of worksamples purchased with the profile of the local labor market in mind. Hopefully an evaluation unit would not, for example, purchase a worksample simulating industrial sewing if that job did not exist locally.

Most evaluators have also been trained in job and task analysis and are able to relate the information gained from the analysis to worker trait groups and other critical information gained from worksample testing. This way evaluators have a unique and effective way to match workers to jobs with a great potential for success.

Also, depending on a particular evaluator's work situation, knowledge of local labor resources and training resources may be part of the knowledge base.

Now, what are the types of issues important to industry. Probably first would be the famous "bottom line". Most businesses operate with a profit margin that they would like to keep rather wide. Ways to insure this are to hire skilled workers, decrease training time and decrease turnover.

One of the most efficient methods of decreasing training time and turnover, and hiring workers possessing the needed skills is to fit worker's skills to available jobs, or to select appropriate training programs to match employees to available jobs.

Is this starting to sound familiar?

There are a myriad of ways in which an evaluation unit can assist private industry. At a very basic level, we can provide objective, measurable data to use as one part of the screening process. This can be done through psychometric or aptitude testing. We can also provide job analysis to identify the worker skills needed to successfully perform certain tasks. By observing the process used to complete a task, or by doing a formal job analysis we can provide information to the employer that he simply may not have the time to gather himself. Instead of trying workers "hit or miss" at particular workstations, we can help insure a successful placement by identifying worker traits necessary for success.

Vocational evaluators are also uniquely skilled for providing information to help integrate injured workers back into the workplace. Through our background and training in characteristics of disability groups as well as job analysis we can provide information regarding job and workstation modification and work environment accessibility. We can also provide a way to identify the injured worker's skills and make suggestions for retraining and/or alternative work with the same employer.

Finally, during manpower layoffs evaluation units can be of service to industry by identifying skills transferable to other jobs or occupational areas, perform interest and aptitude testing which can be used in a vocational counseling situation, help with resume development, and make recommendations regarding training and placement.

Now that we've identified some ways in which our services can be of use to industry, we need to figure out a way to let industry know we exist.

One of the best ways is personal contact. If you know someone who works in a supervisory or management position, talk to them about what you do and how that could help industry. If you know someone who works in Personnel or Human Resources, they may be the ones who make the decision to utilize your services.

Brochures work well too. However we must guard against the "bleeding heart social worker" image that private industry seems to have of rehabilitation professionals by speaking the language of business. Brochures or publications should be designed to specifically target industry and not be leftover brochures from a rehabilitation conference. Issues to address clearly and concisely are: Cost reduction, decreasing employee turnover, identification of work skills in a timely, cost effective manner, and getting the injured worker back on the job.

If your area or community has a Personnel Directors Association they may hold monthly meetings, and they may have a short program at these meetings. Contact the program committee and see if you can make a presentation at an upcoming meeting. This way you would greatly increase your exposure to the individuals within organizations who may make the decision to request your services.

Short in-services for Human Resource Departments are also helpful. If the business or industry is large enough, their personnel people may be in a Human Resource Department which will also house staff working with injured workers, substance abusers and other employees requiring services. The best type of in-service to give would probably be no more than thirty minutes in length and concisely cover the unique services you could provide. It would also be appropriate at this time to discuss your credentials and experience. Be prepared to answer questions regarding fees and timeliness of services. Remember, individuals in business and industry are accustomed to efficiency and respect it. Having answers at your fingertips will be much more impressive than the "I'll get back to you on that" kind of answer.

One final item to remember is flexibility. Business and industry are not interested in a "canned" evaluation program, and they certainly are not interested in a week long vocational evaluation for their employees. They want precise, relevant information, and they want it as soon as possible. A program or service designed specifically to meet their needs and a fee schedule based on these specific services with a rationale to support it will be greatly appreciated by the industry you're dealing with.

Now that your services have been requested, what happens? Don't be surprised when the phone call comes and the business or industry requesting services would like them within the next forty-eight hours. Or, you give them a proposal for services along with a fee schedule and they don't call you for six months. This is not uncommon because you are, in that case, probably a small part of a larger program and the initial contact was for information gathering. If your facility is serious about cultivating private business or industry as a referral source, you must try your best to provide services within their time frames, even if that means a little reshuffling on your part.

Once you agree to provide services, you control the situation and your professional integrity is on the line. Have the confidence to retain personal and professional ethics, especially as it applies to testing individuals. If aptitude testing is requested, it is your responsibility to ask for a job description of the position being tested for, and to interview someone who is currently in that position and perhaps the individual who supervises that position. Do not, for example, give a mechanical aptitude test because that's what the business requests. Find out how they are going to use the information, and make sure you control the process of tool selection. It is also important to obtain a copy of the Federal Register's Uniform Guidelines on Employee Selection Procedures. Read it and make sure your actions are within the Guidelines. It is also important for you to request that your services are used as only one part of the screening process.

If your services are specifically requested for aptitude testing and you decide to take the job, there are a few things to remember and to be sure to discuss with the business or industry with which you will be working.

Is there an appropriate testing environment? Most companies prefer testing on their site as it reduces employee "downtime" taken up with travel. This is acceptable so long as the testing environment is appropriately well lighted and without distractions. If no acceptable site is available suggest your own site.

Are the employees sufficiently prepared for testing? It is important that shift workers, for example, have not just completed eight hours of work when they walk into a testing situation. It is also important to explain the purpose of the testing, how the information will be used, and the fact that it is only one part of the screening process. Also insure that reading levels are adequate for the types of measures you are administrating.

Don't be afraid to decline an offer if you feel there is a conflict with ethics or if you feel you can't provide an adequate service. It is very important that "fairness" to potential candidates be maintained, and that you are satisfied the information will be handled appropriately.

Whether you have been contracted for testing, consultation, job analysis, or work station modification, the final report you send is very important. It will be handled as a document having authority and must be written in a straight forward, business like manner with a minimum of rehabilitation jargon. Any rehab terms used must be clearly defined or your hard work will be useless to the business or industry.

At the very minimum your report should include:

Referral source, client name, place and date of testing (if that was the service provided). This information should stand out at the top of the report for easy access.

Description of purpose of referral. If testing was done, include a brief description of the position for which the testing was given, names of tests and measures used, worker traits being measured and rationale for choosing those particular tools. If workstation modification was requested, be very specific as to machines used, measurements taken and accessibility.

Outcome of service - include test results using the terms below average, average, above average; include recommendations for workstation modification, sources for specialized equipment, and other recommendations based on an individual employee's needs.

If testing was the requested service, include any special circumstances that could have affected outcome. Also attach an appendix describing each test and measure used and norm group information.

If special equipment was recommended, give name and address of source and approximate price if available.

Be careful to remain "neutral" regarding any individual employee. Do not recommend any employee tested for a particular position, and be sure from the onset of a relationship with business that this is clear.

In this age of diminishing public monies, it is becoming increasingly important to broaden the referral base of the non-profit evaluation unit. Private industry is one area to look at when considering the nontraditional referral source. Because the private sector is so different from the agencies that evaluation units are accustomed to dealing with, it takes planning and commitment, as well as a specific marketing strategy, to make it work. Evaluators will need to gain flexibility in how they view their skills and what they may have to offer to business and industry. Evaluators may also find they enjoy the challenge of a new type of service, and ultimately enjoy their job more.

A MODEL FOR VOCATIONAL EVALUATION IN COMMUNITY-BASED EMPLOYMENT

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This paper briefly explains some of the differences between community-based employment advocates and vocational evaluators on the use of vocational evaluation in place-train models. It will then present a general model for the use of vocational evaluation within community-based employment.

Two Sides to the Issue

During the last four years I have been systematically reviewing the literature in transitional and supported employment. During that time I searched the literature for articles dealing with vocational assessment and evaluation within community-based employment. I concluded that community-based employment advocates have a limited knowledge of vocational evaluation and have condemned us for performing the role assigned us in the VR system. These attacks have made their criticisms hard for us to discuss in a rational manner. However, if we look beyond emotions, we must also accept that some of their criticisms of vocational evaluation are valid.

Community-Based Employment Looks at Assessment - The first issue centers on eligibility for services. Because vocational rehabilitation services are not entitlement programs, a determination of eligibility must be made shortly after a person seeks help from VR. In some states, vocational evaluation services help determine if the new client could benefit from rehabilitation services. If the person was severely disabled, he/she would not be considered a good bet for VR services (Menchetti & Rusch, 1988). Because the emphasis in community-based employment is serving persons with severe disabilities, advocates decided that this "screening-out" process was "bad" and, therefore, so was vocational evaluation.

The second criticism is that vocational evaluation and, especially, assessment are linked to the mental testing approach. As we know, this is the approach begun with Benet about the turn of the century, evolved through military and civilian selection procedures, and now is used as the basis for most educational and employment testing. This type of testing is based on the trait-and-factor approach and attempts to identify general factors that predict employment in various jobs. In a recent chapter, Menchetti and Rusch (1988), two of the leading authorities in community-based employment, cite two major problems with the mental testing approach. First, many of the tests used in selection have fairly low correlations between test and criterion. This is especially true of general aptitudes and abilities, such as those measured by the General Aptitude Test Battery. Second, testing is criticized for being predictive in nature.

The linking of vocational evaluation with the mental testing movement is only partially true. Although evaluators use tests and other standardized assessment devices, vocational evaluation, with its emphasis on situational assessment and job site evaluation, was born in the late 1950's because tests were not accurately measuring the skills and abilities of persons with disabilities. With regard to prediction, the goal of selection is to locate a person who will perform well on the job. In doing so, we are predicting future success based on present performance. The providing of all rehabilitation services are based on calculated risks and subjective probabilities; vocational evaluation services merely attempt to obtain objective

information that can be used to predict future outcomes.

Community-based employment centers on the place-train model where a person is first placed on a job and then trained to do that job by a staff person (Hill, 1986; Moon et al., 1985). The beauty of this model is that it avoids many of the problems created by first training a person and then placing him/her either in sheltered or competitive employment, with little or no follow-up services. For example, because training takes place on the job site, it reduces the need of having to generalize from one environment to another (Rusch & Mithaug, 1985). It also ends or reduces social isolation and provides many realistic employment opportunities. If community-based employment is pushed to its logical conclusion, a separate pre-placement assessment is not needed. The worker is placed on the job and trained. If he/she can perform well, what other criteria is required?

The final implication is that tests, work samples, etc. have not been very successful in predicting job success for many person with disabilities.

Vocational Evaluation Looks at Community-Based Employment - As an evaluator, I admit to reading the transitional and supported employment literature with a bias. There are, however, some very basic concerns about the use of the place-train model that need to be addressed. First, unless assignment of a particular job is made randomly, there must be some type of decision making. In other words, some professional(s) must decide who is placed and where this person is placed. As with any selection decision, some persons are chosen and others are not. As long as there are more persons needing services than there are competitive labor market jobs, choices will have to be made. Although some of the earlier literature indicated pre-placement selection (e.g., Mithaug & Haring, 1977; Wehman, 1981), the literature in the mid-1980's has almost totally neglected this issue. However, three very recent works in this area have included discussions of evaluation as part of the place-train model (i.e., Bellamy et al., 1988; Gardner et al., 1988; and Menchetti & Rusch, 1988). The issues are not to evaluate or not evaluate; they are when and how to evaluate and who should perform the evaluation (CCWAVES, 1989).

The above concern leads to the second impression: community-based employment has not been honest in dealing with evaluation issues. A close review of the literature gives the impression that assessment, or at least some decision making process, is used in most community-based employment programs. However, it is not emphasized. Most likely, assessment was not emphasized because it is logically inconsistent with the stated purpose of community-based employment - to provide competitive employment for persons with severe disabilities. In other words, if some choices must be made, would not the most disabled persons be left out? - the very target of the community-based employment movement.

Third, by focusing their criticism on the mental testing approach, community-based employment advocates have overlooked alternative evaluation methods such as situational assessment (Dunn, 1973; Genskow, 1973), job site evaluation (Botterbusch, 1978), and the emphasis on close behavioral observations (Halpern et al., 1982; Coker et al., 1983; Botterbusch, 1985). Although these practices have been to some degree replaced by an emphasis on short-term evaluation that relies on tests and work samples (Botterbusch, 1983), these other techniques still exist and are viable tools. It is interesting to note that the many of the evaluation methods in Bellamy et al. (1988), Gardner et al. (1988), and Menchetti and Rusch (1988) have existed in vocational evaluation for almost 30 years (Neff, 1966).

Finally, the present social, political, and funding environment surrounding community-based employment has produced much heated debate with resentment and misunderstanding on both sides of the issue. The success and cost effectiveness of community-based employment is a research issue; it should not be an emotional issue. If community-based employment is to be implemented on a basis of other than cost-effectiveness, then it should be a clearly stated policy that human dignity and access to the community are more important than the cost of services.

Two Different Approaches to Vocation Evaluation

Part of the confusion about the role of evaluation and its methods derives from the observation that evaluation deals with assessment from two different points of view. The criticisms of vocational evaluation discussed in Menchetti and Rusch (1988) have clearly and correctly raised this issue. There are two major models in evaluation: (1) psychometric and (2) clinical (Cobb, 1972). The psychometric model was taken from military and personnel psychology; it requires the careful and consistent use of standardized devices to measure traits (e.g., aptitudes, academic levels, temperaments). These traits are then validated against job requirements. Most of the tests, assessment systems, and work samples (Botterbusch, 1986; 1987) presently available are based on this approach. Because of improved assessment technology, a reduction in the amount of funds and, therefore, the time provided for vocational evaluation services, the influences of private rehabilitation, and the emphasis on direct placement, the psychometric model is the more commonly used at present.

The clinical model emphasizes the intuitive skills of the evaluator where he/she observes the client under real work or in work-like situations. This type of evaluation is best performed in the community. The focus of the evaluation is to determine how the client interacts with others, what methods of training are more effective, preference for specific activities, and related issues. The major tools are the careful use of behavioral observation, behavior analysis techniques, a knowledge of the client as a person, and knowledge of how he/she reacts in specific situations and under certain conditions (Messmer, 1983). The outcome of this method is a carefully developed understanding of the client; an understanding that can be used to ensure that services are provided effectively. Although these two separate approaches are often viewed as being in opposition, one can and often should be used to reinforce and support the other.

Back to the Basics

In community-based employment, professional rehabilitation service workers should have two separate goals. The first is to decide who has a reasonable chance of succeeding in competitive employment and who will not. As long as not everyone can be served, this decision has to be made. The second goal is to determine the needs of the client so that optimum strategies for employment, training, and follow-up services can be provided. This means knowing the client as a unique individual.

These goals must be linked to methods. Vocational evaluation started with the clinical model and gradually moved toward the general use of a psychometric model. In dealing with persons with severe disabilities in community-based employment, it appears that the clinical model may be the more effective of the two. Limited support for this conclusion comes largely from the follow-up studies done by Project Employability at the Research and Training Center of Virginia Commonwealth University (Kochany & Keller, 1981; Wehman et al., 1982; Wehman & Hill, 1985; and Hill, 1986). A careful review of this project led to the conclusion that most failures in this supported employment project could be attributed to: (1) worker attitudes toward work, (2) skill training problems, and (3) maladaptive behaviors. These findings agree with the commonly accepted truism that most employees fail because of problems in work habits or interpersonal skills, and not from skill deficiencies. Such problems need to be identified during evaluation and prior to placement.

The clinical approach requires that evaluators be capable of carefully identifying and describing behaviors. It also requires that information obtained through observation and behavior analysis be used to construct a valid picture of the entire client. If the criticisms of current evaluation practices by community-based employment advocates are accepted, then the person must be seen as more than a worker trait profile. This leads to a holistic approach that has parallels in medicine and psychotherapy. As a personal note, I believe that evaluation must deal with the whole person, including his/her family, values, physical environment, and social environment. The commonly held idea that a person have a "work personality" is simply incorrect. A person must be viewed as more than the sum of his/her attributes.

Evaluation emphasizing a holistic approach needs to begin with a full understanding of the person and move from there to an understanding of the person's social and physical environment. It should also help the client learn more about him/herself. Because most severely disabled persons lack realistic knowledge of the type of jobs existing within the local labor market, any evaluation program must include considerable vocational exploration and career decision making. Perhaps the cluster approach suggested by Bellamy et al. (1988) would prove useful. Because community-based employment centers on teaching the new worker vocational and social skills, another task for evaluation is to determine how and under what conditions the worker learns best. Turning to more traditional concerns of evaluators, assessment should include estimates of proficiency, work rate, work quality, perseveration, and endurance (Wehman, 1981). Under this holistic approach, independent living skills would also be an integral part of assessment. Assessment of transportation and mobility, communication, self-care and appearance, socialization, functional reading and computation skills have also been suggested (Wehman, 1981). In addition, evaluation would include assessment of parents/guardians and other potential sources of support.

In holistic evaluation, the emphasis would move from work samples and tests to job site evaluation and situational assessment. Data collection would be based largely on systematic behavior observations and on objective data collected during production. The three general approaches to behavior assessment suggested by Close et al. (1985) are suggested: (1) direct assessment of criterion behaviors in either a real or simulated setting, (2) measurement of the knowledge of these behaviors, and (3) evaluation of how persons learn new competencies. Although this approach is admittedly clinical, information gathering is not limited or haphazard. Just as pointiest artists use many dots of pure color to form a picture, the evaluator must collect accurate and detailed data before it can be combined into a complete picture of the client.

Both the information sought and the techniques employed must be solidly grounded in the reality of local labor markets. Evaluators must know what jobs are available, where they are available, and what their requirements are. Community job surveys and the use of detailed job and task analysis would be major tools. Job analysis methods must go beyond the commonly used U.S. Department of Labor (1982) method and include enough information on each task in the position to permit simulation and analysis. After the client is placed, task analysis would continue to be used to develop training procedures. In addition to skills, the social environment, and physical context of the job must be known and included in evaluation. Rusch's (Rusch & Mithaug, 1980; Schutz & Rusch, 1982) social validation process could be used to determine the real expectations of new workers in a variety of settings. These expectations would be included as part of the evaluation process. As differences between the client's present behavior and required behaviors are identified, specific treatment plans could be developed to overcome these deficiencies.

A Model for Vocational Evaluation in Community-Based Employment

This holistic vocational evaluation model is compatible with community-based employment. This model is seen as being applicable for use with severely disabled persons, especially those with mental retardation. It is not intended to be used as a general model for providing evaluation services.

The General Model - Figure 1 presents an overview of the vocational rehabilitation process as seen by an evaluator. Persons are referred to community-based employment programs either as new referrals or from other programs (such as sheltered employment). With new clients the first step is to determine if they are eligible for service and, if so, what program will suit their needs. As in the present system, a small number of responses would be referred for evaluation to determine eligibility for services. Vocational evaluation would begin after the referral to a community-based employment program.

The most common outcome would be continuing within a community-based employment program. Specific, individual recommendations would be made for the type of program (e.g., individual, enclave, mobile crew), the type of job (e.g., manufacturing, grounds, food service), and the amount and type of support needed. The last recommendation is used to plan training, other services, and ongoing support. Infrequent recommendations would include referral to pre-placement training in specifically defined areas (e.g., specific vocational skill training, mobility training), a decision that community-based employment is not needed, a decision that other VR programs are most appropriate, and a decision that the client could not benefit from services.

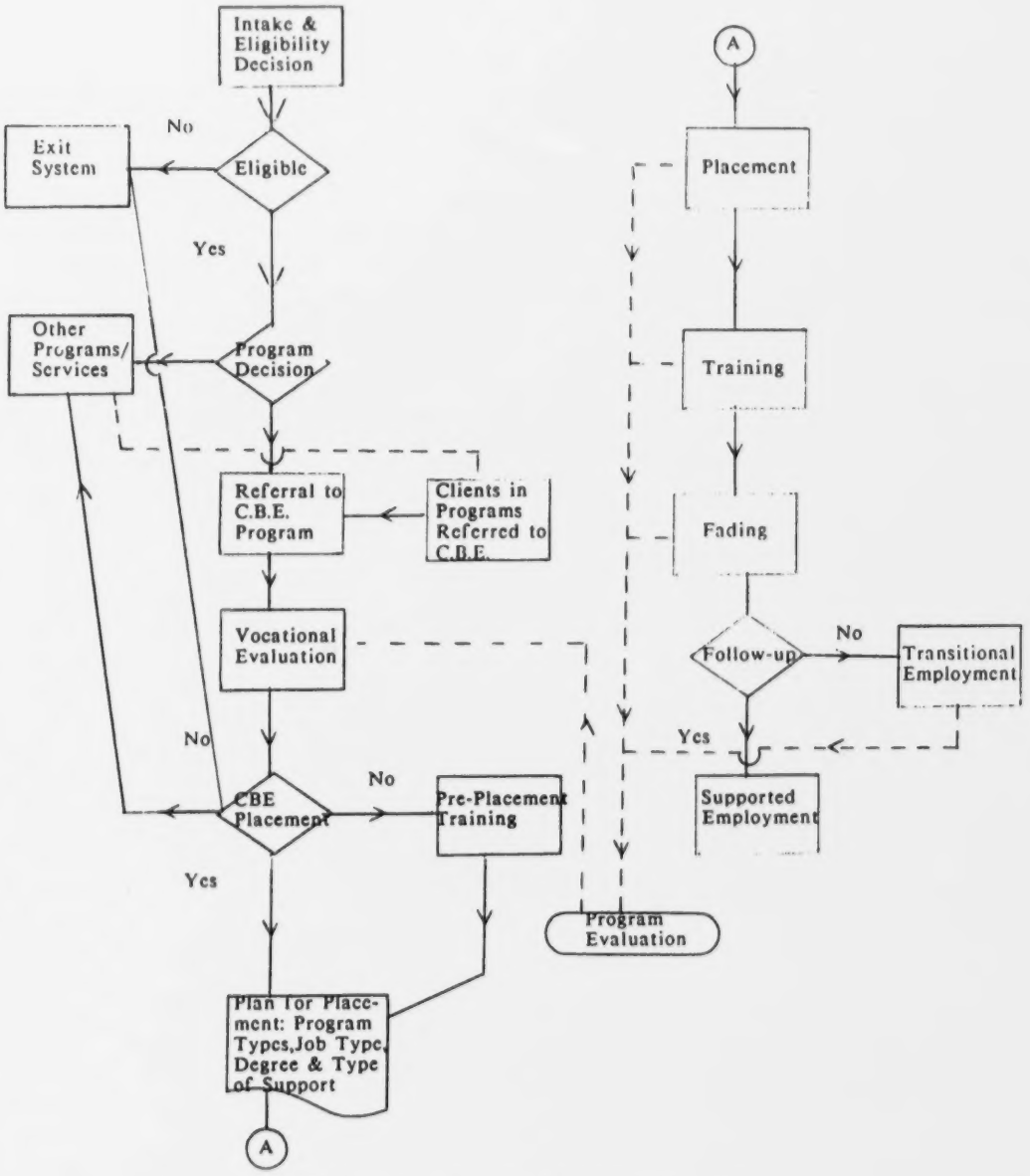

Figure 1 - Vocational Rehabilitation Process

The next step is placement into a competitive employment situation that meets the OSERS (Federal Register, 1984) definitions of supported employment. After placement training would begin; many of the methods and techniques used to train the new worker would be derived from the evaluation report. Training would continue until the new worker reaches the required levels of proficiency. At that point the trainer would begin to fade from the job site, turning direct supervision and training to the supervisor or co-workers. The final step in the model deals with the provision of follow-up services. In transitional programs, follow-up would gradually end; in supported employment these services would continue indefinitely. An important component of this process is collecting program evaluation data during placement, training, fading, and follow-up. This information would be fed back into the vocational evaluation program to improve services.

The final section of this paper will expand the vocational evaluation portion of this general model.

The Holistic Vocational Evaluation Process - The evaluation process begins with intake. Existing case records are reviewed and additional information is obtained, if needed. Evaluation staff meet and interview the client, VR counselor, parents, guardians, and/or advocate. Preliminary assessments of parents/-guardian's encouragement and support for competitive employment are obtained. During the process the

needs and concerns of the client and others are obtained. Next the evaluator and the client jointly develop an individualized vocational evaluation plan (IVEP).

The types and methods of assessment to be used for evaluating the client are set forth in the evaluation plan. Assessment would include personal and social skills, occupational exploration, learning, independent living skills, environmental analysis, and training. Occupational exploration should be largely hands-on in the community and in many cases can be combined with job site assessment. Independent living skills assessment can take place within the evaluation unit or be performed by a specialist in this area. Training assessment attempts to determine the client's training needs for a specific occupation. Although training on the job after placement will remain the emphasis, in some situations, limited skill training may be needed prior to placement. Environmental assessment estimates the degree and type of support available within client's family, group home, community, etc. Weaknesses in these support systems are identified so that they can be addressed prior to or during training. Environmental assessment is seen as a first step in building a support network around the client; this network should be maintained throughout community-based employment. Some programs will include situational assessment as another method. The amount of time needed to complete this evaluation period will depend on the needs of the client; it is expected that this process will require several weeks.

These types of assessments would use the following methods: behavior observation, behavior analysis, job site evaluation, situational assessment, and occupational information.

As seen by the dotted line around the type of assessments, all processes are based on the evaluator's knowledge of the local labor market, job and task analyses, social validation information, and program evaluation results. Although knowledge of the local labor market is essential regardless of what evaluation methods are used, it is particularly critical in community-based employment programs. The evaluator must be able to spend considerable time in the community so a realistic knowledge of job opportunities and demands can be developed.

When all information has been obtained, the evaluator is able to develop a complete picture of the client. A staffing would occur after both evaluator and client know the client's needs and aspirations. This meeting would present the preliminary results of the evaluation and would emphasize the client's program and support needs, job interests, and goals. The staffing would be attended by the evaluator, client referral source, parents/guardian/advocates, and other persons important in the life of the client (Wheeler, 1987; Fadely, 1988). In addition to providing input on career options, these persons would also act as a support network for the client. During the staffing, clarifications of the information collected during evaluation would be made and plans developed. The major outcome would be detailed information on training techniques, interests, and level of support needed. After the staffing, this information would be summarized into an evaluation report. These results would be used to plan future services.

The evaluation report would contain the staffing recommendations, represented by the diamond decision symbol in Figure 2. The most common outcome would be placement in a community-based employment program. It is expected, however, that other outcomes will exist for small numbers of clients. Two of the more common would be specific pre-placement skill training and referral to another program. After completing pre-placement training, the client would enter a community-based employment program. In rare cases services would be terminated at this point.

The community-based employment services of placement, training, fading, and follow-up would then occur. As diagrammed in Figure 1, program evaluation data would be collected to provide feedback to the evaluation unit.

Ramifications of the Model - The use of this vocational evaluation model within community-based employment has numerous ramifications for evaluation staff, the host organization, and services. Some of these are briefly outlined as follows:

1. Qualifications of the Evaluator - This system of vocational evaluation will require highly trained staff who are capable of careful analysis and who have the ability to integrate a large number of variables to form a composite picture of the client. This clinical approach requires training in behavioral observation and behavior analysis. For evaluators presently using primarily tests, work samples, job matching programs, and other techniques based on the worker trait profile, this represents a total change in philosophy. The emphasis on the local labor market means that evaluators will have to be trained in job and task analysis, including identifying significant factors in the social environment. Some of these competencies should already exist in evaluators certified by the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists (1989).

2. Community Interaction - The holistic model is much more interactive than are many traditional evaluation programs. The evaluator must be able to move around the community to obtain current job information, perform job site evaluations, and provide for occupational exploration.

3. Cooperation with Other Staff - Because this model emphasizes the use of vocational evaluation to provide information needed to improve job placement and training, cooperation with other staff is required.

4. Networking - The evaluator must be able to communicate with a wide range of persons having an interest in the client. Parents, group home staff, independent living staff, job coaches, and employers are common examples.

5. Program Evaluation - The rational collection of program evaluation data are essential for improving the system. This need for data complements the increased need for interaction with other professionals and the community.

6. Time and Money - Holistic evaluation will have higher personnel costs per client than assessment based on a psychometric model.

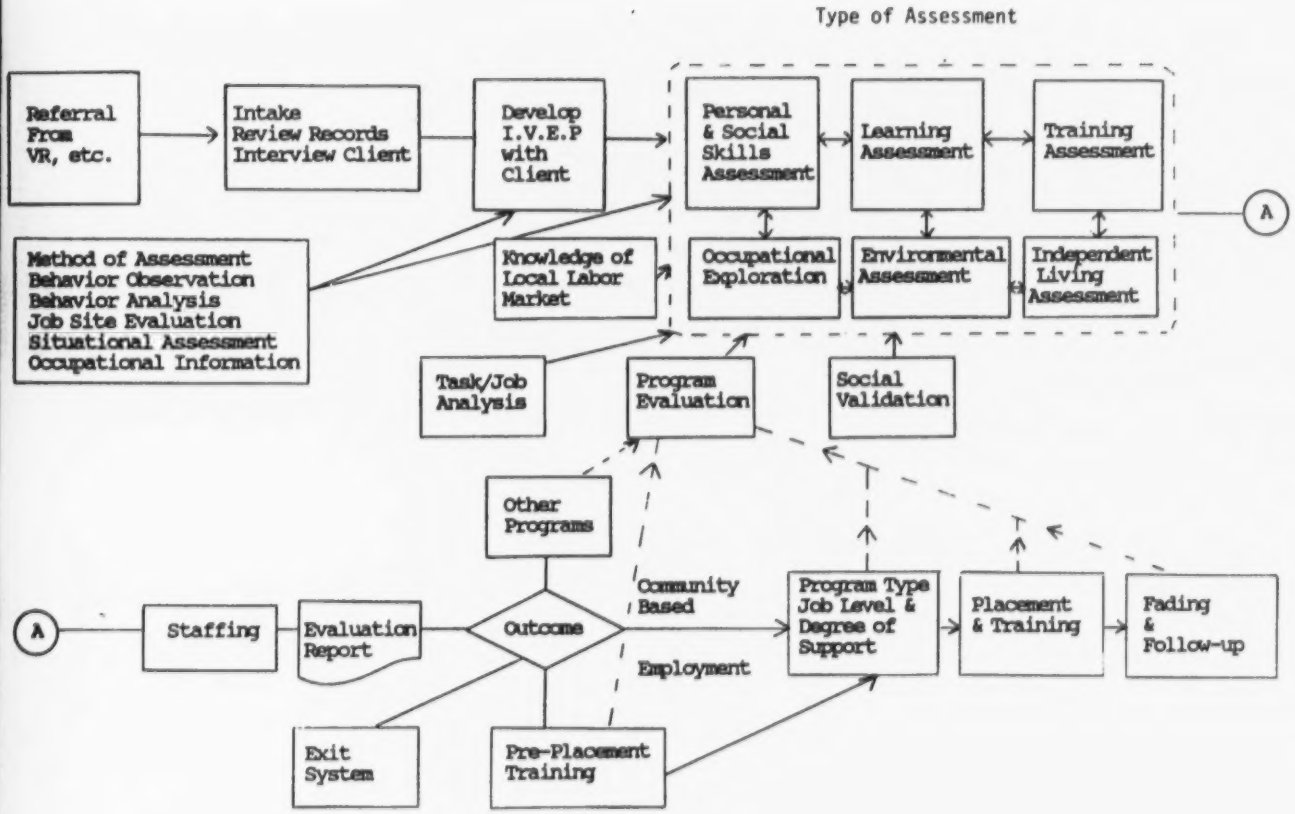

Figure 2 - Wholistic Vocational Model

Time is needed for behavior observation, hands-on experiences, and getting to know the client as a unique person. Evaluation time will have to increase well beyond the three days commonly allowed at present. Of course, the time spent in evaluation must be dependent on the needs of the client. This increased staff time per client translates directly into a higher cost per evaluation. This will be a major barrier against its use. However, if the evaluation period leads to better program selection, shortened training times, and more realistic placements, these increased costs may be justified.

Conclusion

This paper presented the initial conceptualization of a new model for assessing persons prior to placement in community-based employment programs. It incorporates a holistic approach that depends largely on careful behavior observation, performance standards within the community, behavior analysis, and the active involvement of the client.

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TOWARD CONSENSUS: VOCATIONAL ASSESSMENT AND SUPPORTED EMPLOYMENT

Karen Pell Ayella, David Hagner, Pamela J. Leconte and Genni Sasnett

Abstract

Much confusion and controversy has accompanied the establishment of supported employment into habilitative and rehabilitative settings. Likewise, concern and frustration has highlighted the integration of appropriate vocational assessment within supported employment. This compendium of articles addresses both issues. The authors take the approach that we should be and are moving toward consensus regarding vocational assessment and supported employment. They blame no one and encourage collaboration among professionals to move toward consensus in facilitating succcessful employment for people with severe disabilities.

Introduction

Pamela J. Leconte

One of the most confounding problems rehabilitation personnel, particularly vocational evaluators, are faced with today regards vocational assessment and supported employment. There has been much confusion and controversy surrounding the function vocational assessment serves in supported employment. This confusion naturally leads to questions concerning what role vocational evaluators play in the supported employment process. Since the infusion of supported employment is spreading to more and more habilitation and rehabilitation programs, the issues about function and role of appropriate and effective vocational assessment have become national concerns.

Confusion and controversy typically generate anxiety and frustration. Vocational evaluators across the country have expressed such reactions to the supported employment movement. Further, as supported employment begins to "take shape" as a real process for individuals with disabilities, and as outcomes of the process are realized, supported employment personnel have had to struggle with vocational assessment issues.

The confusion about the relationship between vocational assessment and supported employment has been polarized by two notions. One notion, espoused by leaders of the supported employment initiative, involved the perception that supported employment often was the only appropriate intervention for some individuals with severe disabilities. Carried by the momentum of a new technology and by the fervor which often accompanies new ideas, many professionals began to accept or assume the belief that supported employment supplanted other types of rehabilitation services. One service that they advocated the need to supplant was vocational assessment. This was due, in part, to a major misunderstanding or misperception about the numerous differences between the terms and services labeled vocational assessment and vocational evaluation. Experience and literature bear out the premise that many of these advocates identified all vocational assessment or appraisal services as comprehensive vocational evaluation, including a strong association with standardized tests and commercial systems.

At the other end of the polarized spectrum, many people within rehabilitation, including many vocational evaluators, seemed unaware that the services some evaluators had been providing represented a disservice. Therefore, they took umbrage with the idea that vocational assessment and vocational evaluation services should be supplanted, or, in other words, eliminated. Regardless of the reasons why some vocational

evaluators and other rehabilitation personnel made negative, barrier-setting judgements about some individuals with severe disabilities, it remains that such decisions are discriminatory and unacceptable. Facts demonstrate that some rehabilitation personnel were not accommodating people with severe, more difficult to serve disabilities by employing different, creative assessment techniques and strategies. In many instances, vocational evaluation reports continued (and, unfortunately, still do) to "screen out" these individuals from future services or employment by making the determination that these people were "not employable".

Fortunately, pendulums swing long enough that they begin to hover around the center--between two poles. Also, some of the initial emotions by professionals on both sides are being replaced with a focused concern for how to provide maximum success for individuals being served by supported employment. Thus, we are moving toward consensus. To do that, each group of professionals must attempt to understand the contexts and technology associated with effective supported employment and appropriate vocational assessment. An underlying assumption to this joint investigation--searching for successful methods--is that vocational assessment should play a large role in the provision of supported employment services. In other words, there are several uses for assessment in this service option. Indeed, incorporating vocational assessment is essential to successful and satisfactory outcomes for the individuals participating in supported employment.

The purpose of presenting this session at the Issues Forum was to move closer toward consensus. It was intended that by providing the opportunity for professionals from supported employment and community-based backgrounds to discuss issues with professionals with vocational assessment expertise, the circle of consensus would grow. It was also intended that participants in the session could freely interact with speakers who have already tackled the problems of integrating vocational assessment into supported employment programming and who had developed some effective methods.

The following papers are summaries of those presented at the Fourth National Issues Forum. It is exciting to have the opportunity to learn from professional experts who are knowledgeable about and believe in both the efficacy and value of vocational assessment in supported employment. The backgrounds of all three experts incorporate practitioner and researcher viewpoints. Also, each of the experts possesses a solid foundation in vocational assessment and supported or community-based employment practices.

The first paper sets the stage for the role vocational evaluators can and must play in supported employment. Inherent in Ayella's admonishment and challenge to us is the belief that vocational assessment can be useful and is essential to successful habilitation and rehabilitation of individuals with severe disabilities. Also, inherent in the paper is the idea that vocational evaluators must assume a leadership role in the meshing of assessment and supported employment or our field may be radically impacted in ways that we will not find satisfactory.

The paper by Hagner discusses the historical precedents on which supported employment is based and how vocational assessment plays a pivotal role in this process of rehabilitation. It should be noted that the author refers to vocational assessment as vocational evaluation, though readers should interpret this term to mean the broader vocational assessment service design in this case. Hagner outlines the various stages of assessment and emphasizes the questions which should be asked to guide the vocational assessment and employment processes.

In the final paper by Sasnett, she describes an example of a successful process of vocational assessment for supported employment. This process has been implemented and refined over the past two years, and demonstrates how vocational assessment and supported employment purposes and processes fit "hand in hand".

It is hoped that readers of these papers will either improve their understanding of the positive and recursive relationship between supported employment and vocational assessment or that their confidence will be heightened in what they are attempting. As a result, even more individuals with severe disabilities should experience the satisfaction and success in employment for which we strive.

The Role of Vocational Evaluators in Supported Employment: Victors Not Victims

Karen Pell Ayella

We are entering the second generation of supported employment. By that I mean that we are moving beyond the research and demonstration projects which were begun approximately ten years ago and are moving toward wider dissemination and implementation of supported employment. As experiences and successes of supported employment are documented, it is important to discuss vocational assessment/vocational evaluation in the supported employment process. There are a number of points to consider regarding vocational assessment and vocational evaluation in relation to supported employment.

First, is should be emphasized that supported employment is not new. It is a term to describe a model of placement which is targeted

toward the most severely disabled individuals and which offers ongoing support for the duration of that individual's need on the job. Supported employment strategies have been used selectively in the past. With the impetus created by federal mandates and appropriations, it is becoming more commonplace.

The second point is one which is important to emphasize, not as a form of "bashing" but as an admonition to professionals. Simply stated, "the old ways won't work." Historically, vocational assessment has been used as a "gate keeping" process to determine those persons who are eligible or ineligible for services in the vocational rehabilitation delivery system. Evaluators were asked to determine feasibility for services and for employment. With the success of supported employment, such a gatekeeping function is outdated and ill-received. To quote the IRI Uses of Vocational Evaluation in VR document, the problems with the traditional vocational evaluation process are as follows: the methodologies were too setting specific; the activities and vocational experiences were not community based; the data collection was norm referenced on other rehabilitation linked persons and not referenced to the criteria of job entry success; the activities were trait-oriented rather than work performance oriented; and the process appeared to be more exclusive than inclusive. This meant that the process was used more to screen out than to identify resources to screen in.

We have a choice as evaluators, to act as victors or as victims. We can allow the process to dictate our fate and to agree that evaluation is dead and has no application to supported employment. Or we can act as victors, confident in our discrete skills that we have much to offer the assessment process regardless of the setting in which it occurs.

A third major point of consideration is to emphasize that the exciting dimension of supported employment is the opportunity to assess the individual and the environment more thoroughly. This form of assessment builds from a philosophy that there are meaning, value, and demands of work that each individual, in working, espouses. The needs of each individual "drive" the supported employment assessment process, in that it is not a question of employable or not, it is a question of employable with what kinds of supports.

The vocational evaluator has skills in job analysis, behavior observation, and learning style assessment which are critical in the process of matching persons to jobs successfully. As victors in this process, we are also change agents, in changing our own thinking about our roles, as well as changing the thinking of others. Our destiny is in our own hands.

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A Supported Employment Perspective on Vocational Evaluation

David Hagner

Any collection of information or data is meaningful only within a context of theoretical and value commitments (e.g. AcKroyd & Hughes, 1981). Looked at from the other direction, given a set of underlying theories and values, it makes sense to ask some questions but not others; to collect some kinds of information but not others.

It is important to understand one of the implications of this belief: that there is a lot of information that we shouldn't collect. For example, we believe that prospective voters should not be evaluated for their literacy or their knowledge of civics. Since any adult citizen who is not a convicted felon has the right to vote, it is a waste of time to collect "extra" information. If we believed, as people once did, that only people who met these other standards should be able to vote, then such data collection would make sense.

Vocational evaluation is no different from other types of information gathering in this respect. Nothing frustrates evaluators more than receiving referrals without specific questions or issues that they are expected to address. Collecting information willy-nilly, without a clear idea of the context, is meaningless and--as the voting example illustrates--potentially dangerous.

Supported Employment in Context

So the best place to start to define what vocational evaluation should look like in a supported employment context is with the fundamental theoretical and value premises of supported employment. Supported employment can be briefly defined as paid employment for people with severe disabilities in integrated settings with ongoing support. Although supported employment services seem to some people to be a radically new idea, even a fad, imposed on vocational rehabilitation from outside, nothing could be farther from the truth. Providing paid employment has always been a central feature of vocational rehabilitation. Making services available to a broader range of people with disabilities has been part of the tradition of rehabilitation since its inception. The concept of integration--becoming a participant in one's community rather than set aside or stigmatized as

different--is inherent in the meaning of "rehabilitation" itself. And ongoing support is simply an extension of the old-fashioned job modification process to include modified training and support services (such as job coaches) as well as modified physical features (such as ramps or wider aisles).

Supported employment evolved as a natural outgrowth of previous rehabilitation concepts and achievements. The projects with industry initiative, the addition of on-the-job-training arrangements, the emphasis on severe disability, and the development of post-employment services all had a role to play as precursers of supported employment. In fact, supported employment has always been with us in incipient forms. As one example, Tredgold's text on mental retardation, the classic text in use for several decades, discussed the work option that we call today the "work enclave" and included a photograph of several persons with mental retardation working alongside nonhandicapped co-workers in a factory (Tredgold & Soddy, 1909/1970, plate XXV). As a more recent example, Doane and Valente (1977) published an article about job coaching nearly ten years before an OSERS initiative established the current supported employment "fad." Like other new ideas in our field, supported employment is the collective accomplishment of all of us.

What to Ask and What Not to Ask

Vocational evaluation must be regarded as an essential component of supported employment. But given the theoretical and value context, there are some traditional questions that it no longer makes sense to ask or to collect information about. And, there are also some newer questions that do need to be asked; some non-traditional information that has to be collected.

We no longer ask, for example, "Does this person have the skills to succeed in our program?" As a matter of policy, we have decided to extend our services to a group that includes those with the most severe disabilities. We can expect that some will have few skills and that our programs will have to be modified as required to match the needs of our service recipients. Nor do we ask "In which of a continuum of settings--day treatment, work activity, sheltered work, competitive work--does this person belong?" We already know that special settings do not meet the integration requirement. We already know that to be a part of one's community is to work in natural, not artificial settings. We don't assess people to determine who gets to be a part of their natural community any more than we assess people to determine who gets to vote. We have replaced a continuum of settings with a continuum of support services.

The questions that we do ask and need to answer in a supported employment context will usually be variations on these two: In which community settings is this person most likely to be successful? And what supports will be required? Vocational evaluation can be thought of as the systematic collection of information relative to these two kinds of questions.

A Model of Vocational Evaluation

In order to collect enough of the right kind of information, vocational evaluation will have to meet a number of requirements. First, since support will be provided on an ongoing basis, it will have to be long-term in scope, encompassing both pre-employment and post-employment phases. Second, since supported employment utilizes integrated settings, most evaluation activities will be conducted at the workplace or in other natural settings. Third, the job-seeker with a disability will not be the sole focus of evaluation, but work environments, co-worker attitudes, support systems, and so forth will be evaluated as well. The components of vocational evaluation are listed and briefly discussed below. A forthcoming article (Rogan & Hagner, in press) will provide a fuller discussion of the model and its components.

Pre-employment evaluation. The abilities and preferences of job-seekers need to be assessed before a suitable job is developed. Interviews with the job seeker and with significant others and some review of previous records can provide such information. In addition, participant-observation techniques can be employed as the evaluator and job seeker eat lunch together or participate in some other shared activity.

A job-seeker's support system is the second focus of pre-employment evaluation. What residential supports are available to assist a person in succeeding at a job, and the impact of wages on family or personal finances, are each important. The location of a job-seeker's home in relation to job and transportation opportunities should also be assessed. These factors will have a direct impact on recommendations for work environments and support services.

Third, the characteristics of potential work environments should be assessed. Worksite inventories and job analyses can assist in matching abilities and interests to the demands and reinforcers of a job. Workplace cultures can also be assessed (e.g. Wilkins, 1983) to determine the potential and requirements for social integration.

Post-employment evaluation. The acquisition of task skills can be assessed using both task analysis data collection and employer in-

terviews. The integration of the supported employee--his or her assimilation into the culture--should not be merely assumed, and can be assessed through direct observation and interviews. And finally, the job satisfaction of the supported employee must be assessed, and the information used to assist the employee to make career development decisions through a series of jobs, if need be.

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Effective Vocational Assessment in Supported Employment.

Genni Sasnett

St. John's Child Development Center operates a supported employment program for persons with severe disabilities in Washington, D.C. The individuals served by St. John's have a variety of disabling conditions including deaf-blindness, mental retardation, autism and cerebral palsy. The individuals work in paid employment positions in the community with job coach support.

Vocational assessment for the individuals St. John's serves is accomplished in a couple of ways. Some of the individuals come to St. John's through public and private school systems. With these individuals, vocational assessment takes place over a very extended length of time. The process begins while students are still in school when they are approximately aged fifteen. At that time, the students begin being involved in community work experiences in a volunteer capacity. Students participate in these work experiences for several hours per day, one to five days per week. Ideally, the students rotate through three separate work experiences each school year. Assuming that the students remain in school until age twenty-one, this process allows them the opportunity to participate in as many as eighteen separate experiences during their school years. Attempts are made to expose students to as many different types of jobs as possible. They may repeat an experience with a certain type of job but the setting always changes. Data on students' rate of productivity, level of supervision required, level of interest observed or expressed, as well as other relevant information is collected by staff who accompany the students during their work experience. This data is summarized in a work training site report which is generated at the end of each individual work experience for each student. The information in the work training site reports is then summarized in an annual work experience report at the end of each school year. This report becomes part of the student's school record. By the time the student exits school he or she should have as many as six annual reports with data on performances at a variety of jobs.

Students are referred to the local vocational rehabilitation agency at the time their school work experience begins. Vocational rehabilitation and the school system work together to identify appropriate adult services agencies to take over service to students when they exit school. St. John's is one of those adult service agencies. St. John's enters students' lives during their final year in school. When we enter, we begin our vocational assessment process. The process starts with a thorough record review to determine important medical, psychological, social, educational and vocational information. The school volunteer work experience information is included in this section. If appropriate, St. John's may conduct standardized testing as a next step. It should be noted, however, that this is done only in rare cases. The nature of the disabilities of the individuals St. John's serves generally make standardized testing inappropriate. St. John's staff occasionally use a reading free interest inventory. Next, we conduct behavioral observations in a variety of settings, e.g. the school, a work training site, the home. Finally, we conduct a comprehensive home interview with the family or residential service provider and the individual being assessed. In this interview we focus heavily on determining the level of support the family or extended family may be able to provide to the individual in his or her endeavor to become employed. We also look at neighborhood employment resources, skills and interests in the home and, finally, we ask the individual being assessed and his or her family to suggest the type of employment that would be desirable and appropriate.

Using all of the information above, lists of strengths and needs are developed and types of specific employment are proposed. Employment is then sought by St. John's job developer who does very close follow-up with employers, workers and

job coaches after employment commences to ensure that the job match was an appropriate one. St. John's staff work in conjunction with school personnel throughout this placement in paid employment. The student exits school with no interruption in his or her employment. School job coaches and other personnel fade out as St. John's staff assume the coaching and support roles.

In some instances, St. John's receives referrals for service for individuals who are not a part of a school program. These are often individuals who have been out of any type of program for a substantial amount of time. In these cases, we are limited by the fact that we do not have the extensive work experience data which we have from students exiting school programs. St. John's approach to vocational assessment remains the same as with school students, however, without the work experience data, the emphasis on behavioral observations and home interviews is much greater. When a job placement is made it is considered more tentative based on the fact that our assessment is done using limited information. The follow-up is done very closely and transfers to new employment are made when necessary.

In a number of cases these individuals come to St. John's with vocational evaluations done by vocational rehabilitation or a private evaluation facility. Most of these evaluations recommend sheltered workshop placement or suggest that the individual evaluated is "unemployable" and, therefore is appropriate for day program placement only. In spite of these recommendations, St. John's has found that these individuals are capable of working in competitive supported employment positions. The question that must be asked is why these individuals come to St. John's with such limiting evaluations and yet clearly show themselves able to accomplish a great deal more. The answer lies in two significant areas. The first area is the assessment of service options. If evaluators were assessing these individuals to determine where on the traditional continuum of service options, such as train and place and sheltered employment, these individuals could best be served, then the evaluations are accurate. But with the advent of the supported employment models and concepts such as "job sharing" in which individuals combine abilities to share the duties and pay of a single job, the evaluations are not accurate. The field of opportunities has expanded significantly. The second area is the area of assessment techniques. Persons with severe disabilities cannot be accurately assessed using much of the technology traditionally used in vocational assessment. There is a prevalence of certain characteristics among persons with severe disabilities, such as communication impairment, difficulty with transference of learning and negative reaction to abrupt change, that make techniques such as standardized testing, work sampling and behavioral observation,when done in an unfamiliar environment, very ineffective. Conclusions drawn from assessments which do not take into consideration the special characteristics of a particular population cannot be considered to be reflective of a person's abilities, aptitudes or interests.

Vocational assessment does have a role in supported employment in the sense that in order to provide service to an individual a determination must be made of what service is needed. That determination should not be whether an individual will have an opportunity to become employed but rather what support will be needed to enable them to take advantage of employment opportunity. Evaluators have an interesting challenge before them to educate themselves to the special characteristics of persons with severe disabilities and to the newest employment service options and, also, to adapt current assessment technology. Evaluators must also take advantage of the opportunity to act as change agents in their communities by not limiting their recommendations to the service options provided by local rehabilitation agencies. Evaluators must make recommendations which they feel will best serve the needs of the individuals they are assessing and lobby to have service options developed in their communities which will meet those needs.

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JOB MATCHING SYSTEMS: ONE DIFFERENCE IS THE DATA

JEFFREY A. TRUTHAN, MS, CRC, CVE

Abstract

The use of computerized job matching systems carries with it the responsibility to fully understand the data being manipulated. Commercial computerized job matching systems use various occupational coding structures as a basis for job matching. Since each coding structure was developed for a different purpose, there is a very different perspective on how occupations are defined and grouped for the purpose of that code structure. This article examines the most commonly used coding structures, demonstrates the differences, and draws some important conclusions for vocational planning and expert testimony.

Computer technology enables vocational professionals to conduct a vocational analysis in minutes instead of hours. The use of a computer frees the professional from the mundane drudgery of manually comparing client characteristics (skills, interests, aptitudes, education, worker traits, limitations, and preferences) to the demands of occupations. But whether the resulting vocational analysis is complete and comprehensive is entirely dependent upon the defined purpose of the occupational coding structure used by the computer program.

The ease and speed with which vocational data can be sorted by the computer can be misleading (and consequently misinterpreted) without an understanding of the data being manipulated by the computer. This article examines the occupational coding structures most commonly used by commercial job matching systems.

Sources of Occupational Data.

There are a number of different sources of occupational data, each published by a different branch of the federal government. Each government agency had its own needs and perspective in mind when it classified occupations.

Dictionary of Occupational Titles (DOT).

The Department of Labor (DOL) has been charged with the development of methods for classifying information about occupations. Since 1939, the DOL has produced four versions of the DOT, the most recent of which includes the Fourth Edition and its Supplements (US DOL, 1977, 1982, 1986). In the early 1970's, the DOL published the *Handbook for Analyzing Jobs* (US DOL, 1972), a standardized method for collecting and reporting occupational data. The *Handbook for Analyzing Jobs* (HAJ) was an extension of earlier developmental work, but also established for widespread use important definitions of many coding structures and worker traits, including physical demands, environmental conditions, training time, aptitudes, temperaments, and interests.

The HAJ introduced two new coding structures to

help describe the work performed in a job. These new coding structures are called WORK Fields and Materials, Products, Subject Matter, and Services (MPSMS). WORK fields codes characterize the machines, tools, equipment, and work aids used by the worker or describe the socio-economic purpose of the work. Methods verbs are also used to denote the specific methods for getting the work done. The MPSMS code structure indicates the materials processed or the products produced by the worker, the data or subject matter contemplated, and/or the services provided by the worker.

There are 103 three-digit codes assigned to describe the WORK fields; there are 580 three-digit codes to describe the MPSMS of the occupation. Each of these three-digit codes is a discrete category. The coding was carefully done so that at a two-digit code level, categories with the same first two digits are clustered together into logically related groups. The DOL encouraged the use of several WORK and MPSMS codes per occupation to adequately describe the work performed in an occupation.

The method of sentence analysis mandated in the HAJ caused the narrative job descriptions to be written in such a manner as to reflect these two important code structures (WORK and MPSMS codes). The importance of these codes to an accurate assessment of the transferability of the skills of the worker was emphasized by Botterbusch (1986). Most computerized job matching systems use the DOT as its source of occupational data. Only a few use WORK and MPSMS codes in its matching process. The transferability process using these codes was originally developed in 1981 (Watters, 1985).

Standard Occupational Classification (SOC).

The Department of Commerce did not need the elaborate DOT method of classifying occupations, since it was concerned with the nature of occupations in the US economy especially as compared to the labor force of other countries. Accordingly, the *Standard Occupational Code Manual* (US Department of Commerce, 1980) was developed using a four-digit code. Each additional digit in the SOC code adds finer detail to the occupational structure, which lends itself to statistical analysis and tabulation. There are only 649 SOC codes which cross reference to the DOT codes. Job matching systems based on SOC codes are usually those sponsored by the State Occupational Information Coordinating Committees (SOICC). SOC based systems work well for the non-disabled, general, and student populations, but have limited application to rehabilitation or special education populations since the Department of Commerce did not collect any worker trait data on SOC codes.

CENSUS Codes.

The Bureau of Census (1980) developed its own occupational classification structure, which is fairly consistent with SOC codes, but even more simple since it consists of only 473 three-digit codes. The comparatively small number of occupational codes works well for the Census Bureau, which uses semi-skilled interview workers to assign occupational codes to the information self-reported by the interviewees. Data cannot be aggregated or clustered using CENSUS codes since the numbering method is sequential rather than categorical. CENSUS codes are popular since they are used in County Business Patterns and some wage and employment statistics are available. However, like SOC codes, no worker trait information was gathered by the Census Bureau.

Guide for Occupational Exploration (GOE).

While not truly an occupational coding structure, the DOL (1979) introduced the GOE. Intended as a counseling tool for Employment Service counselors, the GOE structure groups DOT occupations by a six-digit interest code. The 350 GOE codes were used to group occupations based on "the broad interest requirements of occupations as well as the vocational interests of individuals". GOE codes are a popular way to conduct vocational exploration and career planning, but do not work well as an accurate mechanism for skills transfer. Having an interest in an activity cannot be construed as possessing a trained skill in performing a certain kind of work method, using certain tools and machines, etc.

Data Interrelationships

The only government coding system based on detailed, on-site job analyses by trained occupational analysts is the DOT. All other occupational code structures are a simple derivative of the DOT, with little else than a brief, general description of job duties and a cross-reference to the DOT codes which constitute that group. *The DOT is the only source for any kind of worker trait information.* These data relationships are best represented by Figure 1.

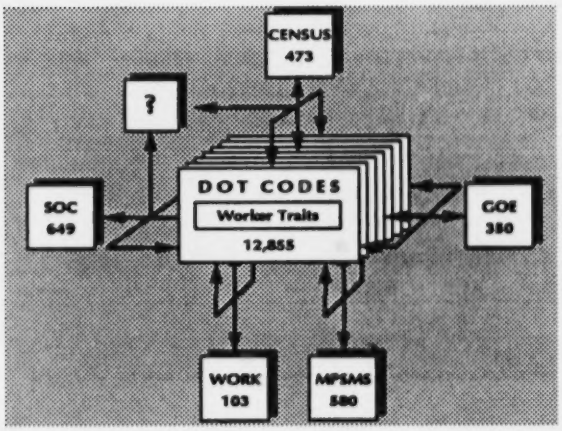

Figure 1. Relationships of the various occupational code structures.

The number associated with each data resource indicates the number of different codes used by that coding structure in relation to the DOT. For example, although the CENSUS code structure contains 503 occupational codes, only 473 have been cross referenced to the DOT. The same is true for SOC codes, where certain SOC codes have no corresponding DOT code(s).

Most important about Figure 1 is the directionality of the relationships. Every DOT code has one unique set of worker traits. Each DOT code has one corresponding SOC, CENSUS, and GOE code and it has one or more WORK field and MPSMS codes assigned. For the most part, there is a simple one-to-one relationship of the DOT to the other code structures. However, the inverse relationship is quite different; it is one code to many DOT codes. One GOE code (for example, 05.11.01 - Equipment operations, construction) refers to many DOT titles (there are 64 DOT occupations within this GOE subgroup). The same is true for nearly all other instances of the other code structures. This inverse one-to-many relationship is critical to the appropriate interpretation of vocational data, since important employment and wage information is predominantly collected using the abbreviated occupational coding structures, not the DOT code structure.

Data Differences

Each government agency collects occupational data using the coding format suitable for its intent. For example, the Bureau of Census uses their simple system to make it easy for semi-skilled interview workers to assign an occupational code. It is tempting to use CENSUS data to quote wage information, but it must be done with great caution since any one CENSUS code refers to many DOT codes. The wage data thus quoted might be accurate for the CENSUS group as a whole, but not likely in the context of one or two of the DOT titles which an individual might be able to perform in that CENSUS group following an injury. The same interpretation problems occur when quoting employment statistics or labor market projections based on CENSUS or other occupational code structures.

That each code system contributes a different perspective to an understanding of occupations is best understood through an example. Let us consider an apparently "pure" work activity such as stationary engineering. The three-digit WORK code for stationary engineering is 021, "producing and/or distributing heat, power, or conditioned air". A search through the DOT and its Supplements identifies 52 occupations which primarily involve this WORK code. These 52 occupations range from sedentary to medium strength and cover an SVP range of 2 to 8. Further examination of these 52 DOT occupations reveals 8 different six-digit GOE interest codes for the WORK of stationary engineering, 13 different CENSUS codes, and 16 different SOC codes (See Table 1).

The six-digit GOE interest code for stationary engineering is 05.06.02. A search of the DOT finds that only 22 DOT occupations fall into this GOE subgroup, which encompasses three different WORK codes (most of which are WORK = 021). The three-digit CENSUS code for stationary engineering is 696, which identifies only 12 DOT occupations (each of these 12 have a WORK code of 021) but these twelve DOT codes refer to 4 different GOE codes. The SOC code for stationary engineering is 6931, which identifies only 6 DOT titles, all of which are WORK code = 021, but which reveal 3 different GOE codes.

It should be clear that the occupational groupings are very different depending upon the code structure used. With such startling differences in an occupational example as ostensibly "pure" as stationary engineering, the vocational professional is at a loss to explain where the 40 DOT occupations went which are known to involve the WORK of stationary engineering (WORK code = 021) if there is exclusive reliance on only one occupational code structure such as the CENSUS code for stationary engineering, which only identified 12 of the 52 occupations which involve the WORK of stationary engineering.

Table 1 presents a frequency count of different occupational codes as arranged by the primary WORK codes. These frequency counts clearly underscore the heterogeneity of the groups. On average, there are 24 different GOE codes per WORK field, 23 different CENSUS codes per WORK field, and nearly 28 different SOC codes per WORK code. (Similar frequency counts for GOE, CENSUS, and SOC codes are available through the author upon request.)

TABLE 1. FREQUENCY COUNTS OF CODES WITHIN EACH GROUP

WORK CODES	Total Titles	GOE Codes			CENSUS Codes			SOC Codes		
		Total	Min	Max	Total	Min	Max	Total	Min	Max
001	21	3	1	19	5	1	12	5	1	12
002	15	2	2	13	3	2	11	4	2	9
003	133	13	1	51	17	1	47	26	1	27
004	52	8	1	14	17	1	9	16	1	9
005	10	3	1	5	4	1	7	4	1	7
006	23	4	1	13	8	1	9	9	1	9
011	182	43	1	63	41	1	58	44	1	58
012	184	26	1	46	37	1	37	39	1	37
013	128	40	1	17	39	1	14	40	1	10
014	84	27	1	16	27	1	20	32	1	20
021	52	8	1	23	13	1	15	16	1	15
031	314	56	1	84	52	1	54	61	1	55
032	103	17	1	30	17	1	31	18	1	32
033	18	7	1	10	13	1	3	13	1	3
034	52	8	1	30	14	1	14	15	1	15
041	75	27	1	11	15	1	21	19	1	19
042	69	21	1	31	17	1	22	17	1	22
043	77	19	1	27	23	1	13	24	1	13
051	312	43	1	43	42	1	76	50	1	51
052	11	9	1	2	8	1	3	8	1	3
053	74	22	1	16	20	1	22	25	1	13
054	427	61	1	58	46	1	89	62	1	77
055	149	20	1	46	28	1	33	36	1	18
056	108	25	1	28	18	1	46	22	1	46
057	134	23	1	40	29	1	29	34	1	28
061	262	39	1	83	32	1	132	39	1	104
062	183	31	1	34	25	1	32	28	1	26
063	198	44	1	19	31	1	54	38	1	39
071	27	10	1	11	8	1	19	9	1	17
072	27	11	1	9	10	1	9	12	1	5
073	13	7	1	3	5	1	4	6	1	4
081	46	18	1	11	11	1	31	13	1	17
082	11	10	1	2	8	1	3	8	1	3
083	32	19	1	5	11	1	17	13	1	7
091	16	3	2	12	5	1	7	5	1	5
092	26	8	1	12	14	1	8	16	1	5
093	19	6	1	9	10	1	6	10	1	6
094	19	12	1	4	11	1	3	11	1	3
101	43	18	1	9	15	1	19	16	1	18

Note: Min is the minimum number of DOT occupations found in any cell
Max is the maximum number of DOT occupations found in any cell

TABLE 1. FREQUENCY COUNTS OF CODES WITHIN EACH GROUP (continued)

WORK CODES	Total Titles	GOE Codes			CENSUS Codes			SOC Codes		
		Total	Min	Max	Total	Min	Max	Total	Min	Max
102	823	80	1	98	104	1	157	129	1	149
111	293	36	1	83	46	1	46	56	1	46
112	63	20	1	10	18	1	16	23	1	12
121	472	49	1	111	62	1	59	73	1	59
122	33	16	1	7	22	1	4	24	1	4
131	78	22	1	17	20	1	17	24	1	17
132	188	45	1	24	28	1	33	36	1	32
133	66	24	1	12	15	1	20	18	1	17
134	247	47	1	51	40	1	25	58	1	22
135	123	34	1	27	24	1	27	36	1	22
136	93	33	1	12	27	1	14	31	1	13
141	186	33	1	22	24	1	57	27	1	55
142	142	35	1	31	21	1	74	22	1	76
143	219	37	1	49	22	1	145	28	1	145
144	38	14	1	7	9	1	22	11	1	19
145	219	41	1	52	21	1	125	25	1	92
146	285	21	1	103	37	1	58	41	1	51
147	397	44	1	58	32	1	101	41	1	94
151	91	26	1	24	18	1	23	22	1	23
152	151	28	1	57	22	1	59	26	1	59
153	151	33	1	45	29	1	37	33	1	37
154	23	10	1	8	9	1	13	11	1	9
161	52	14	1	18	9	1	30	11	1	28
162	41	16	1	13	11	1	17	13	1	15
163	141	28	1	28	21	1	39	26	1	38
164	68	18	1	15	18	1	18	23	1	14
165	35	14	1	5	13	1	10	16	1	7
170	10	5	1	4	4	1	6	4	1	6
171	227	24	1	102	26	1	125	29	1	125
181	11	7	1	3	7	1	4	7	1	4
182	19	10	1	6	12	1	4	11	1	4
183	35	11	1	16	14	1	9	15	1	9
191	173	37	1	27	28	1	52	39	1	37
192	53	25	1	5	20	1	12	23	1	12
201	49	11	1	21	12	1	13	16	1	11
202	30	7	1	19	6	1	16	10	1	14
211	714	87	1	261	93	1	276	103	1	275
212	80	19	1	45	15	1	23	14	1	23
221	208	42	1	45	45	1	28	48	1	28
231	274	51	1	53	73	1	23	80	1	23
232	262	39	1	48	49	1	39	55	1	39
233	8	8	1	1	6	1	2	6	1	2
241	70	23	1	14	24	1	11	26	1	11
242	55	5	1	50	12	1	37	13	1	37

Note: Min is the minimum number of DOT occupations found in any cell
Max is the maximum number of DOT occupations found in any cell

TABLE 1. FREQUENCY COUNTS OF CODES WITHIN EACH GROUP (continued)

WORK CODES	Total Titles	GOE Codes			CENSUS Codes			SOC Codes		
		Total	Min	Max	Total	Min	Max	Total	Min	Max
243	16	7	1	10	6	1	7	8	1	6
244	180	30	1	29	37	1	28	42	1	26
251	131	26	1	26	36	1	15	42	1	15
261	45	12	1	11	8	1	24	10	1	17
262	57	12	1	32	16	1	20	17	1	17
263	6	2	1	5	2	1	5	2	1	5
264	44	12	1	25	14	1	23	14	1	23
271	155	48	1	20	51	1	29	55	1	30
272	20	6	1	11	4	2	11	4	2	11
281	81	18	1	28	25	1	15	24	1	14
282	87	41	1	14	49	1	9	52	1	10
291	168	38	1	15	46	1	33	47	1	30
292	288	42	1	56	43	1	82	69	1	21
293	113	28	1	18	34	1	16	35	1	16
294	160	23	1	28	33	1	27	33	1	27
295	419	84	1	49	64	1	167	93	1	43
296	100	35	1	17	37	1	41	43	1	35
297	49	17	1	10	11	1	26	12	1	25
298	9	6	1	4	5	1	3	5	1	3
299	2	2	1	1	2	1	1	2	1	1
AVERAGE	**125**	**24.2**			**23.7**			**27.7**		

Note: Min is the minimum number of DOT occupations found in any cell
Max is the maximum number of DOT occupations found in any cell

Implications for Vocational Planning and Expert Testimony

This analysis clearly demonstrates that each occupational coding structure is very different from the others. Each structure contributes an additional perspective on the definition of occupations. Reliance on a singular coding structure to depict the world of work to a disabled or displaced worker may be overly restrictive of true occupational options and overlook some feasible opportunities.

Exclusive use of one approach in expert testimony can be easily refuted through review of Table 1 or any of the author's supplementary tables. Diminished access to the labor market may be substantially misrepresented and overstated. In the stationary engineering case, if a worker could only perform a maximum of light lifting, the WORK code identifies 30 sedentary and light occupations (57% of the 52 total in this WORK code) vs. the 4 light jobs of the 12 CENSUS code stationary engineers (33%). There is a huge difference in how this information impacts upon a settlement in a litigated case.

Valid vocational planning and expert testimony by the professional must recognize these enormous structural differences. Now that computer technology has removed the onus from the task of vocational analysis, we are free to reconsider the basics of what the data represents. We can study the HAJ to reconsider our methods of analysis and expand our repertoire of vocational tools. Recognize that the DOT is still at the center of all of the other code structures and that all worker trait information is associated with DOT codes only. Remember the issue of directionality when cross-referencing between coding structures. Exercise caution in interpretation of data based on cross-referenced codes.

When choosing a computerized job matching system or reviewing a report produced by one of them, look for flexibility and variety in the approaches to searching the data. Do not rely exclusively on one coding structure or job matching system unless it has the flexibility to search on a variety of occupational

THE TRIAL AND TRIBULATIONS OF A FIRST TIME VOCATIONAL EXPERT

DENNIS J. MAGREGA

Abstract

This paper reviews selected literature related to giving testimony as a vocational expert. It concludes with a discussion of an active Worker's Compensation case, the first time court experiences of the author. Information is provided on the evaluation process as well as the court experience. Recommendations for pre-trial preparation are made.

History

Where did it all begin? There is some opinion that vocational expert testimony began in the early 1960's in the area of social security disbursements (May, 1983; Harper, 1985). Most often, the Kerner vs. Flemming decision is cited as the major reason for the advancement of vocational expert testimony as the U.S. Office of Hearings and Appeals required the use of vocational experts in a vast array of disability cases. After this time, the growth of such testimony was quite remarkable (Brandon, 1983). Vocational experts have been called to work on a variety of cases such as divorce, product liability, worker's compensation, and personal liability (May, 1983). They have also been involved when catastrophic loss has occured (Deutsch and Sawyer, 1987).

Who Does It

Brandon (1983) makes a distinction between the "professional witness" and the "expert witness." The former represents a blend of vocational knowledge and legal expertise, a sort of "hired gun," while the latter is a rehabilitation professional working in the field. The expert witness has the added benefit of not only being able to speak to issues theoretically, but practically as well (Rasch, 1985). Walker (1985) reports that full-time practitioners are preferred because of their involvement in the field. Walker also feels that they cost less than professional witnesses and any communication problemscan be easily cleared up. While Field and Sink (1981) stated that a bachelor's degree and experience were necessary minimums, Harper (1985) wrote from the prospective of a rehabilitation counselor and noted that a master's degree, certification and experience were all minimum requirements. Professional qualifications can come under very close scrutiny, depending on the complexity of the case (Deutsch and Sawyer, 1987). Whichever author's group we choose to follow, experience is still noted as a major reason for selection of experts by attorneys.

What Happens

The actual courtroom experience generally follows the pattern of establishment of qualifications, direct examination from the plaintiff's attorney, cross-examination from the defense attorney and a "redirect" back to the plaintiff's attorney. This last activity allows for a summation of the pertinent points of the case and a chance to clear up any confusion brought on during the cross-examination.

Do's and Don'ts

Reviewing the literature reveals that a number of authors offer advice on what or what not to do. The following is a comprehensive list obtained from Rasch (1985), Deutsch and Sawyer (1987), and Harper (1985).

(1) Be polite and courteous at all times - don't "blow your cool."
(2) Be honest.
(3) Think before you speak.
(4) Speak clearly and audibly.
(5) Beware of flattery.
(6) Questions that can be answered by 'yes' or 'no' should probably be handled that way.
(7) Don't get humorous or frivolous.
(8) If you make a mistake, correct yourself.
(9) If you don't know, say so.
(10) Avoid technical terms - your job is to educate.
(11) Try to anticipate where the attorney is going.
(12) Do not speak for other experts and do not go outside your area of expertise or what your were asked to do.
(13) Keep materials on the stand to a minimum.
(14) Dress conservatively.

Typical Questions Asked

Deutsch and Sawyer (1987) provide a comprehensive list of questions which can be broken down into two scenarios, the non-catastrophic injury and the catastrophic case. Some questions related to professional qualifications cross over into both areas. Nonetheless, examples of questions include:

(1) Did you meet with the client?
(2) Where did the meeting take place?
(3) What was the purpose of your evaluation?
(4) Was the client alone?
(5) What procedures did you use?
(6) Briefly describe your findings.
(7) Discuss the instrument you used.

Harper (1985) presents a list similar to the above.

Defense Strategies

For those afraid that they will come under severe attack in the courtroom, take some solace in the following as McLeod (1988) writes:

> "It is an accepted rule in trial practice that counsel should not attempt to upstage a specialist in his own field. It rarely gets results." (pg. 80)

This quotation from a lawyer should help those who fear that the defense lawyer may try to show that they know more about the field of vocational evaluation than the expert witness. Baum (1987) also acknowledges the hazards in launching personal attacks on expert witnesses and goes on to offer the following advice to defense attorneys.

(1) Attorneys should learn all they can about the expert as a witness.
(2) Start the cross-examination with commonly agreed upon points.
(3) Stay to low risk questions. Do not get too bold or outrageous as this is the sign of a weak case.

He also states that, occasionally, attorneys will attack the financial gain of the expert.

Summary

The foregoing has been a selected review of the literature related to giving expert testimony. Although brief, it highlights the areas that most novices will find interesting. The following case presentation will offer a comparison of what happended in one particular case.

The Case

The client was a 48 year old laborer with a 4th grade education. He had worked most of his life at such jobs as farming, service-station attendant, lumber mill worker, railroad track repairer, sandblaster, and general foundry worker. This latter position was his most recent and he had held the job for approximately 11 years, up to the time of the accident. He was twice divorced and had an adult daughter. He lived with his mother.

The client claimed that he "woke up" in the emergency ward of the local hospital. He did not know how he got there. Apparently, some co-workers found him unconscious on the floor of the foundry. Somewhere along the line it had been determined that he had been hit on the head and his injury had occured while he was working. There was subsequent back surgery with the removal of two discs. Later medical complaints proved to be groundless and one medical doctor, while assigning a 25% permanent impairment rating with lifting restrictions of 35 pounds, also suggested the individual was malingering. Nonetheless, the client was now suing for worker's compensation.

Before the client arrived for our apointment, I was sent medical reports as well as the report of a consulting psychologist. The psychologist determined that the client had a full-scale I.Q. of 57 and that there was depression and anxiety present that were contributing to this individual's inability to not only hold a job, but to handle his own financial affiars.

The client arrived on time with two family members. Neither stayed for the morning session. The procedures consisted of the following: an extensive interview followed by testing with the Woodcock-Johson Psychoeducational Battery, and the Valpar Number 9, full body range of motion. The client was extremely vague and seemed bewildered by the entire process. Reading and

math achievement levels eventually placed him at the Grade level.

Following the testing process, computer job search programs were utilized to determine loss of access to both national and state labor markets. The two programs were the OASYS Job Search Program and the Labor Market Access (LMA) Program. Both systems give some measure of pre- and post-accident access to the labor market. The classification of jobs (Field & Field, 1984) was also utilized. Based on the psychologist's report, my own assessment, and the medical restrictions, the client seemed to be in very poor shape with respect to opportunities in the labor market.

Now that I had my information, I needed some courtroom survival skill training. For this I turned to two hardened veterans of the litigation scene who graciously offered to question me with typical questions they had been asked in court. Fortunately, one even assumed the demeanor of a blustering defense attorney which not only exposed me to content, but to affect as well. I was ready. Or was I?

There was little pre-trial consultation with the attorney. A phone call and a fairly quick discussion of the case was all that happened and we were ready for the opening act, the deposition. The deposition is a pre-trial event during which the defense attorneys have the opportunity to find out who you are and what you are likely to say in court. It takes place in an office. I was warned that they could take up to three or four hours, although it was not expected this one would be very long. I was also forewarned that the defense attorney in this case was a "nice" man but not to underestimate him.

I arrived for the deposition slightly ahead of schedule. It took place at our attorney's office. I took my notes, medical and psychological reports, as well as computer printoutsfrom the job search programs. I had been pre-advised to take nothing into the office that I did not want to have brought into evidence or questioned in any way. We met in a conference room and only myself, our client's attorney, the defense attorney, and the court reporter were present. I was offered coffee and we made some polite off-the-record conversation. And then we started:

(1) State your name.
(2) What are you doing in Auburn?
(3) Have you had occasion to meet with Mr. _____?
(4) Did you perform any testing on Mr. _____?
(5) What conclusions did you arrive at?
(6) Did you use any other materials to arrive at your conclusion?
(7) Do you have any information with you on Mr. _____'s former jobs? May I copy it.

And that was it. What I thought was going to be a long, arduous experience was over in seven minutes. Total time in the office was no more than ten minutes. I barely had one sip of coffee before my first deposition was finished. My informants were right. The defense attorney seemed like a nice man.

Later that month came the trial. I arrived at the court slightly ahead of schedule. The defense attorney was also there and we once again made polite conversation outside our appointed courtroom. A previous trial was still in progress. Eventually, my client's attorney arrived but our client was nowhere to be found. He had been at the lawyer's office well over an hour ago but we feared he may have gotten lost finding the courtroom. Normally, the drive is about fifteen minutes. Eventually, he and his family arrived. I was the first witness called. Standing outside the room waiting to be called I felt a bit nervous but excited at the same time. This was it. This was one of the reasons I came to Auburn. My very first trial.

I was called in. The courtroom was largely empty except for the judge, the defense attorney and an associate, my client and his family, and his lawyer. There was only one unkown female in the court. She left immediately after my testimony and her identify was never established. I was sworn in. My client's lawyer was the first to ask questions and he basically followed the lines of the deposition. Then it came time for the cross-examination. This nice defense attorney rose from behind his desk, puffed out his chest, began to bluster and walked toward me. At this point, I remembered my blustery rehearsal and began to smile. And he smiled, but quickly reverted to his professional scowl. He reiterated a few things already discussed and then the sequence approximated the following:

Attorney: Sir, you say this man worked on a farm, is that correct?
Me: Yes sir.
Attorney: Have you ever worked on a farm?
Me: No sir.
Attorney: Well, I've never been to Auburn and I don't have all your degrees but I've worked on a farm. I know what it takes to do farm work. Tell me, sir, can this man lift a cow's tail and wash its rear end?

At this point, the court broke out laughing. The judge, our client's lawyer, the defense associate and the lady of mystery were all laughing. I was sweating. Once the laughter died down, everyone was looking at me for a response. To this day, I do not remember what I said.

Temporarily, the defense attorney shifted his line of attack. We got to the issue of malingering. Some of the questions included:

- Do you think this man is malingering?
- A noted neurological surgeon with years of experience has said he is malingering. Don't you think you should yield to his opinion given all his experiences in the field of rehabilitation?
- Are you aware of the concept of secondary gain?
- Tell us the definition of secondary gain.

Once again, we returned to vocational issues.

- How do you know this man has no access to the labor market? Did you phone employers in town and try to place him?
- Can this man wash a car window?
- Can this man measure oil in a car?

Finally, we went to the "redirect," the opportunity for my client's lawyer to ask me all the right questions to make up for any gaffs that I might have made under cross-examination. Basically, he stayed to the issue of what I was asked to do in the way of an assessment, and what medical restrictions I had considered. This gave me the opportunity to offer that the same doctor who suggested our client was malingering also assigned the permanent disability rating. Finally, he asked me that if society did not change, what were this man's chances for competitive employment.

And so it was over. What seemed an eternity passed in approximately twenty-five minutes. My first trial had come and gone. Did I feel I was well-prepared? Generally. I wish I had not so firmly planted in my mind that short answers were best. Somehow, I took that too literally and, in retrospect, I feel I could have offered more information without opening up the proverbial can of worms. Certainly, I had read enough literature on giving expert testimony that I was not too surprised by the questioning. I was most grateful for the expertise of colleagues and their willingness to share experiences and practice with me.

Would I go through this all again? You bet. It was definitely an exciting, challenging experience. Most of the anxiety associated with being in court is not unlike the exam anxiety experienced by students and a healthy remedy for both is an old motto that still rings true: be prepared. If you have done your homework, know all the details of your case and are confident in your findings, putting up with the shenanigans in court is a lot easier.

Good luck!

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Vocational Evaluation of Closed Head Trauma: Clinical Management and Evaluation Strategies

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ABSTRACT

Rehabilitation program development for persons with traumatic head injuries and cerebral vascular accidents is progressing at an impressive rate. However, research shows that current rehabilitation programming is not keeping pace with the increasing needs of this special population. This paper reviews the sequela often associated with closed head trauma and cerebral vascular accidents, and attempts to provide some input as to why this population is difficult to rehabilitate. Various comprehensive team structures are identified with advantages and disadvantages reviewed. Vocational evaluation issues confronting the evaluator as well as the evaluee are explored, with suggestions offered on how to resolve some of the evaluation problems.

The terms "Closed Head Injury" (CHI), "Brain Injured", and "Traumatic Brain Injury" (TBI) are rehabilitation "buzz words" in today's market place. Head trauma rehabilitation is the newest focus of service development as more federal funding sources focus on this difficult rehabilitation population, and more hospitals develop inpatient and outpatient programs designed for head trauma rehabilitation. The most recent statistical literature places TBI as the third ranking cause of death and disability under the age of 35 years old (Jacobs, 1988). Between 400,000 and 600,000 persons sustain head injuries annually, of which 100,000 die and between 50,000 and 100,000 survive with severe impairments that prevent independent living (Author, 1985; Corthell & Tooman, 1985; Jacobs, 1988). An additional 200,000 head traumatized persons survive with continuing sequela that interferes with independent living skills (Jacobs, 1988). Further statistical review of annual medical and rehabilitation costs place the tab at 3.9 billion dollars (1980 dollars) yearly to accommodate and rehabilitate severely head injured persons. Given the high annual injury rate and health care expenditures, Brotherton, Thomas, Wisotzek, and Milan (1988) noted that current rehabilitation research and practice have not kept pace and are insufficient to meet the needs of head trauma patients. Thus, this paper offers some insight into the development of an outpatient clinic model, its staff organization, and suggests how vocational evaluation should be integrated into the clinical system.

Head Trauma Characteristics

Before proceeding to the clinical evaluation and treatment of traumatic brain injury, it is necessary to review the sequela which often accompanies traumatic brain injury, to include cerebral vascular accident (CVA), or stroke. It is important to review CVA sequela when referencing traumatic brain injury since TBI sequela are characteristic of CVA residuum, except more diffused (Anderson, 1981; Fralish, 1988a; Musante, 1983). Also, many hospital programs include CVA patients with TBI patients during rehabilitation programming, thus requiring clinical rehabilitation professionals to be knowledgeable in both types of head injuries.

Stroke is considered a form of closed head trauma, defined as a sudden onset of weakness or other neurologic symptoms as a result of injury to a blood vessel in the brain (cerebrum, cerebellum, or brain stem) (Anderson, 1981). Causes of CVA may include thrombosis (blood clotting), hemorrhage (blood vessel rupture resulting in bleeding in brain tissue), damage

from pressure produced by blood leakage, and embolism (blockage of blood by clot in vessel) (Anderson, 1981).

One rehabilitation advantage of CVA over TBI is the tendency for residual effects to be focal rather than diffused. Residual effects of CVA are specific to the affected brain hemisphere. For example, damage to the left cerebral hemisphere will result in communication (language - speaking, reading, writing) impairments as well as right side hemiplegia (Fowler, 1981; Musante, 1983). It is not uncommon to note auditory comprehensiveness deficiencies as well. Right cerebral hemisphere damage will result in visual-spatial and judgment deficiencies. The key weakness of the right cerebral insult is the individual's inability to orient himself or herself with respect to the environment. Thus, perceptual deficits are prevalent as well as visual-spatial deficits. Other deficiencies may include motor/sensory paralysis of the left side, depth p[reception, appreciation of the concept of wholeness from incomplete fragmentary data, intuition, and critical imagination (Fowler, 1981).

Behavioral patterns differ between affected hemispheres. The individual with left hemisphere damage may respond in a slow, scattered, disorganized, and anxious fashion to new activity. Depression is common since these people are usually over-sensitive to their disability. Persons with right side damage may completely deny any deficits; ignore, or be unaware of them. They are usually satisfied with their performance regardless of its quality. Thus, right side damaged persons are unable to learn from their mistakes or profit from experience. They are usually insensitive to the needs and desires of others, thus causing eventual rejection by their peers.

Complications from CVA vary and are numerous. Anderson (1981) listed depression, joint contractures, spasticity, bowel and bladder dysfunction, urinary tract infections, pneumonia, seizures, subluxation of shoulder, and shoulder/hand syndrome. Fowler (1981) noted more general deficits resulting from CVA to include:

1. Quality Control: Persons with CVA display a lack of ability in guiding and checking one's own behavior (doing the right thing at the right time).

2. Memory: There is a tendency for information to be remembered and processed selectively, whether it involves new information or old information. The individual's retention span may have greatly decreased since the individual can no longer process high volumes of information. Finally, the individual experiences difficulty with generalization, or applying what has been learned in one setting to another setting.

3. Emotional Liability: The individual may no longer be able to control his or her emotions. This involves laughing or crying without any apparent reason.

In spite of the above residual affects resulting from CVA, there are two key factor which encourage rehabilitation: 1) Damage produced by stroke is not progressive; improvement does occur after the acute phase, and 2) the patient's adaptation to various disability components appears to improve over the long term (Anderson, 1981).

Traumatic brain injury (TBI) presents the rehabilitation team with a myriad of potential complications affecting cognitive, psychological, behavioral, and physical functioning (Fralish, 1988; Fralish, 1988a). Unlike CVA etiology, TBI may be caused by either acceleration or deceleration forces acting on the brain. Specific types of lesions resulting from these forces include the following:

1. Diffuse Lesions: Resulting from acceleration forces, these microscopic lesions are noted throughout the brain which usually causes permanent motor deficits consisting of paresis, slowness, ataxia, abnormal muscle tone, abnormal posturing, or any combination of the above deficits (Mills, 1988). Usually, an unconscious state follows diffuse lesions, with residual symptoms to include difficulty with maintaining optimum level of arousal, difficulty coming to, sustaining, or shifting attention, impaired vigilance, impaired gait and/or labored speech, fatigue, and reduction of mental speed and concentration (Corthell & Tooman, 1985).

2. Concussive/Focal Lesions: Resulting from deceleration forces, contusions are noted at the frontal and temporal lobes resulting in memory deficits and executive functioning deficits (organization and planning). The individual usually has difficulty with initiating, carrying out, monitoring, and self correcting in goal-directed behavior. Additionally, the individual lacks the ability to generalized learned behaviors to alternate settings (Corthell & Tooman, 1985; Mills, 1988).

3. Coup and Contrecoup Lesions: These result from the bending of the skull from a blow causing initial bruising, driving the brain against the opposite wall resulting in bruising on the far side (contrecoup). Resulting deficits include sensory, motor, perceptual, constructional, and language functioning (Corthell & Tooman, 1985).

Traumatically brain injured persons are exposed to complications early in their acute injury stage which may have an affect on their rehabilitation potential. Early medical and neurological complications were studied by Kalisky, Morrison, Meyers, and Van Laufen (1985). They reviewed medical charts of 180 patients who were between one and six years post trauma. They determined ventricular dilation and posttraumatic seizures as the chief complaint (56% of files reviewed). Gastrointestinal problems with impaired liver function were noted in 50% of the files, followed by gastrourinary infections (45%). Other complications included respiratory (tracheostomy complications), cardiovascular, and dermatology (decubitus ulcers).

Secondary damage in TBI persons may result from bleeding between the skull and brain (subdural hematoma), within brain bleeding

(intracerebral hematoma), herniation of brain matter due to excessive pressure from bleeding and swelling from fluid build-up, lower than normal blood oxygen (hypoxia), inadequate blood supply to the brain (ischemia), abnormally low blood pressure (hypotension), and the formation of out-of-place bone (heterotopic ossification) (Corthell & Tooman, 1985; Mills, 1988).

Residual deficits impacting rehabilitation progress and success may include headaches, dizziness, emotional stress and irritability, depression, and anxiety, and an inability to attend to complex stimuli (Novack, Roth, & Boll, 1988). Specific residuum are categorized under physical, cognitive, behavioral, and psychological functioning. Corthell and Tooman (1985) and Fralish (1988a) documented specific functional losses under each of the above mentioned categories. They noted physical deficits to include spasticity of one or more extremities, gait impairments, wheelchair ambulation training, sensory integration impairment (i.e., impaired perception of temperature, changes in tactile sensation, and difficulty with visual-motor integration), visual deficits resulting from muscle imbalance causing double vision and visual field restrictions, and motoric speech disorders (i.e., dyarthia and oral apraxia). Cognitive deficits reveal problems with attention/concentration such that the individual is unable to ignore external stimuli or unable to attend to task. Immediate, short-term, and long-term memory may be greatly compromised, and problem-solving capabilities are greatly reduced. Organizational and planning are impaired such that task sequencing abilities are substandard. The patient often displays impaired categorization which affects one's ability to generalize information to alternate settings or tasks. A common trait is the individual's rigidity, or inflexibility to explore alternatives to situations. They experience difficulty in sustaining internal mental activity for extended periods of time. Judgements and response to their environment are usually inadequate. Finally, there is usually a processing spread, such that a delay in response to stimuli is noted. This may also trigger impulsive or reactive behaviors.

Behavioral changes are pronounced. Brotherton et al. (1988) noted that the traumatized individual usually is unable to engage in purposeful activity, may be disinhibited, fails to initiate and maintain conversation, or fails to respond to conversation of others. There may be inappropriate gestures (i.e., hand rubbing, biting nails, etc.), poor posture and eye contact, failure to reinforce statements of others, and a focus on self and an affectively negative conversational content may be presented. Fralish (1988a) added that the individual may display inappropriate social skills and socially inappropriate behaviors. She further noted that there may be poor initiation and impulsivity displayed during evaluation/treatment activities.

Psychological deficits may include sexual disinhibition, temper outburts, and display of emotions (Corthell & Tooman, 1985). Fralish (1988) noted specific psychological patterns in the TBI patient. She listed these as follows:

1. Impaired capacity for social perceptiveness, characterized by self-centered behavior, decreased empathy, decreased self-reflection, and decreased ability to be self-critical.
2. Impaired capacity for self control and self regulation, with random restlessness, increased impulsivity, and increased impatience.
3. Stimulation-bound behavior resulting in social dependency, difficulty in planning and organizing, and decreased behavioral initiative.
4. Emotional changes including increased apathy, silliness, and irritability, emotional liability and increased or decreased sexual drive.
5. Inability to profit from experience accompanied by decreased social learning.
6. Conceptual and behavioral rigidity or inflexibility usually in conjunction with decreased self control or stimulus-bound behavior.
7. Disruption of previous learned social behaviors, including inappropriateness of context, frequency, duration, and sequence.
8. Increased awareness of disabilities, often associated with depression characterized by withdrawal, sadness, inactivity, and self-destructive or agitated behavior. Anger may be characterized by irritability and bitterness.

Clinical Program Structure

Therapeutic intervention requires a comprehensive team approach. No one professional group can profess to have the expertise to address all of the known residuum of stroke and closed head injury. Team members may vary in comprehensive rehabilitation day program settings, with varying duties and responsibilities as well. Specific roles are assigned contingent on whether the team is structured as multidisciplinary, interdisciplinary, or transdisciplinary.

Team Players

The day rehabilitation team should include a medical director (Corthell & Tooman, 1985), neuropsychologist, speech therapist, occupational therapist, physical therapist, rehabilitation nurse, and a therapeutic recreational specialist (Moore & Plovnick, 1988). Ancillary team members may involve professionals from vocational evaluation and vocational rehabilitation (job placement). These members are ancillary primarily due to funding constraints from third party benefit providers and medicare, which do not authorize payment for vocational services unless prearranged. However, in support of vocational rehabilitation, Moore and Plovnick (1988) noted that rehabilitation intervention should also provide for educational and vocational rehabilitation, as well as family, individual, and group counseling.

Medical Director
a physiatrist by training, and directs the rehabilitation team. His or her primary role is to provide information regarding physical abilities and limitations, and predict how daily functioning will be affected. This individual is responsible for the final report with input from all disciplines involved (Corthell & Tooman, 1985).

Neuropsychologist. This individual assesses and treats brain behavior relationships, as well as provides guidelines for use of compensatory strategies for memory problems. Additionally, this individual is a valuable resource to the team regarding cognitive, executive, and behavioral/psychological deficits (Corthell & Tooman, 1985; Moore & Plovnick, 1988).

Physical Therapist. This person specializes in the physical aspects of rehabilitation, and provides range of motion exercises and strength development of the extremities. This individual also provides guidelines for ambulation, use of assistive devices, and transfers. Physical fitness programming may also be a responsibility depending on the degree of the patient's impairment (Anderson, 1981; Corthell & Tooman, 1985; Moore & Plovnick, 1988).

Speech/Language Pathologist. This person provides guidelines for the use of augmentive communication devices, communication skills development, reading/writing skills development, and may instruct family in home techniques. The speech pathologist may also treat verbal memory deficits as well as address the role of language in organizing and planning functions (Anderson, 1981).

Occupational Therapist. The occupational therapist provides guidelines for adaptive equipment, assistance in activities of daily living and gross and fine motor skill development (Moore & Plovnick, 1988). This person focuses on the functional aspects of rehabilitation, evaluating and training in dressing, eating, and personal hygiene. The occupational therapist may evaluate a persons' driving skills, and take responsibility for improving the individual's attention, planning, and organizing functions (Anderson, 1981; Corthell & Tooman, 1985; Moore & Plovnick, 1988).

Psychologist. Although not typically a part of the team if a neuropsychologist is on staff. The psychologist can be invaluable in performing intellectual and personality assessments, as well as provide education and counseling to the family. The psychologist may also instruct in the transfer of behavior management and provide guidelines for social interactions as well as intervention guidelines during times of stress and possible agitation (Corthell & Tooman, 1985; Moore & Plovnick, 1988).

Rehabilitation Nurse. This individual provides nutritional and dietary guidelines assesses vitals periodically, and instructs in self administration of medication. The nurse provicdes the team with information regarding the patient's alertness, and the patient's ability to care for and monitor him self or her self (Corthell & Tooman, 1985; Moore & Plovnick, 1988).

Therapeutic Recreation Specialist. This person is responsible for guidelines regarding leisure skill development, use of community resources and participation in physical, social, and community activities (Moore & Plovnick, 1988).

Vocational Rehabilitation Counselor/Evaluator. This person assesses specific worker traits and functional levels to determine the evaluee's maximum worker trait profile. This person also provides job placement assistance with supported and transitional employment resources, or selective placement as indicated.

Team Structures

Once the team members have been selected and approved, there is the decision regarding how to structure this team. Howard (1988) and Leland, Lewis, Hinman, and Carrillo (1988) identified team structures as multidisciplinary, interdisciplinary, and transdisciplinary.

Multidisciplinary Team

This team approach requires independent assessments from each respective member, listing each respective team member's program goals, objectives, and treatment plan designed to remediate deficits in a particular area of functioning (Leland et al., 1988). This model is referred to as a medical consultation model because of the emphasis on physician involvement and control. The physician usually makes the initial evaluation and obtains input from each team member before developing the treatment plan or writing the evaluation report. The physician leads the team staffings, and members "report" to the physician.

Howard (1988) noted deficiencies in this model which are summarized as follows:

1. Inadequacy of the medical model in general. Traumatize brain injured rehabilitation programs should be focused on a learning model based on skill acquisition. The rehabilitation process is one of assisting the patient with relearning necessary functions, such as aspects of self care and community re-integration. The medical model is concerned with procedures such as medicating, irradiating, or operating to alleviate a cure, and does not address skill attainment or re-development.
2. Fragmentation. Consultations from each rehabilitation discipline results in fragmentation in the overall planning of treatment and outcome goals.
3. Lack of horizontal communication. Separate evaluations discourage the person from being viewed upon as a whole, but rather as a fragmentation of the total evaluation process. Team members communicate among their respective

olleagues and the team leader, but rarely among other disciplines for evaluation feedback.

4. Team leader as the decision maker. With the emphasis on separating the disciplines there is little encouragement of group interaction. Decisions regarding treatment plan, discharge plan, and family recommendations are left to the team leader.

5) Focus is on intradisciplinary treatment goals. Treatment goals are often set without input from other members. The result may be an overlapping of treatment goals and the evolvement of territorial issues.

Interdisciplinary Team

This approach requires the blending of the various disciplines' skills and resources in order to provide effective rehabilitation. Team members collaborate on the assessment and subsequent definition of outcome goals and a treatment plan (Leland et al., 1988). The emphasis is on group planning and problem solving with the physician acting in a leadership capacity for the group process (Howard, 1988). However, Leland et al. (1988) noted that this approach may also fragment the treatment protocol since each team member is responsible for only discipline-specific objectives, and works alone in evaluation and treatment.

Transdisciplinary Team

This approach requires the integration of evaluation processes from the respective disciplines, such that assessment information is synthesized into a single report (Leland et al., 1988). Thus, the report reflects the collaborative development of outcome goals, provides a holistic picture of patient functioning, and identifies realistic outcome goals and objectives.

The key to this approach is the ability and willingness of the disciplines to collaborate on the same treatment and evaluation milieu. For example, the occupational and physical therapist may conduct their evaluations and treatment regimes as a team rather than as separate entities. This enhances skill generalization because treatment plan components are implemented consistently by all team members across treatment settings.

Transdisciplinary Team Pitfalls

Although the transdisciplinary team looks good on paper, the practicality of such a model may be questionable. Scheduling problems are the more obvious setback, as team members' schedules will have to be coordinated with others, thus minimizing evaluation and treatment flexibility in such an unstable rehabilitation population. Secondly, staff members will be required to attend extensive inservice training, thus consuming valuable billable and treatment time. Thirdly, when utilizing various disciplines in evaluation and treatment programs, territorial issues will surface, with one discipline claiming certain rights over the other collaborative team member in terms of evaluation and treatment protocol. Finally, the team would require a physician with a mind-set that would allow for equal collaborative status rather than a more "dictatorial" status as allowed in the multidisciplinary and interdisciplinary approaches. Such physician types are rare.

In actuality, multidisciplinary and interdisciplinary team approaches appear to be the preferred choice among rehabilitation facilities. With continued progress in the development of treatment strategies, the transdisciplinary team model may be more readily acceptable and practiced in the near future.

Vocational Evaluation

Vocational evaluation applied to head trauma rehabilitation addresses the influences of all deficits demonstrated by the traumatized person, and how these deficits impact vocational functioning (McMahon & Frasier, 1988). The evaluation purpose is to assess the patient's malleability (ability to react appropriately or adjust to changes, priorities, supervisors, and co-workers), retention of skills or potential for development through training, behavioral competence, and response to environmental stimuli which can greatly influence one's employability (Corthell & Tooman, 1985).

Evaluation Preparation

Prior to testing, the evaluator should be aware of certain personality factors and their origins so that test battery development will include the most appropriate tests. For example, understanding the patient's pre-onset factors (Lynch, 1982), and how primary factors (factors directly related to the injury) and secondary factors (characteristics developed during the course of recovery) differ will better prepare the evaluator for potential behavioral issues regarding the evaluee's response to test activity challenges. This information is usually presented in team staffings and through chart note reviews. The vocational evaluator should solicit family, treatment team, and client input before and during the evaluation. Results should be linked with those of the neuropsychological assessment findings with frequent feedback and consultations with the neuropsychologist, and the evaluator should expect inconsistent performances across tests with occasional manifestations of anger and frustration (McMahon & Frasier, 1988). Thus, with detailed preparation and ongoing input from team and family members, the vocational evaluator will have to remain alert and ready for unpredictable events.

Vocational Evaluation Issues

The TBI patient is a difficult person to evaluate vocationally, and the evaluator should be aware of certain issues which may significantly influence the total evaluation process and outcomes.

Musante (1983) identified inconsistent performance, patient reaction to tasks, use of standardized worksamples, and the typical non-static approach in evaluation delivery as

concerns for the evaluator. These are described in more detail below.

Performance Inconsistencies. Performances may vary among patients due to certain memory deficits. For example, the individual may be able to retain old memory, thus presenting him or herself to be fairly cognizant of events. However, new memory may be greatly compromised, thus preventing the individual from following through with seemingly simple sequenced testing activities. The evaluator may underestimate the patient's abilities and offer a test which proves to be too complex. One solution is to offer the individual tests which require practice trials which are included in the normative process for that respective test. This will enable the evaluator to test-out any short-term or immediate recall deficits.

Expression of Anger/Frustration. Once simple tasks may now be difficult and complex for the individual. It is important for the evaluator to understand that although the individual may present a different level of cognition, that individual is very aware of the residual changes presented by the disability and what he or she was once able to do. The evaluator is encouraged to graduate initial activities to more complex activities after baseline functioning has been established through trials. This will allow the evaluee to experience the satisfaction of task completion and success. It is important that the evaluator provide immediate feedback and support for tasks completed successfully.

Standardized Worksample Administration. The individual may not be able to perform the tests due to dysfunction in upper extremity, thus requiring test modifications. For example, persons with perceptual and language deficits may require instructions to be pantomimed or demonstrated rather than verbally presented, or pictures displaying tasks sequences be offered in the place of verbal instructions. The evaluator is also encouraged to offer instruments which encourage learning of activities. For example, the Valpar Tri-Level Measurement Test requires the learning of various measurement processes through activity sequencing. Two other tests which have been researched in head trauma vocational evaluation that report excellent learning and sequencing requirements are the Differential Aptitude Tests and the MacQuarrie Test for Mechanical Ability (Lezak, 1983).

Non-Static Evaluation Approach. The vocational evaluation process in TBI settings needs to be more flexible, and not as rigid in terms of testing protocol. For example, the evaluator should have the evaluee demonstrate the skill which is being evaluated before engaging in the formal test activity. If reading skills or comprehension are questioned, the evaluator should have the evaluee read the test instructions back to him or her. Test instructions should be presented in short and concise components, so as not to confuse the individual. The evaluator must remember to provide the evaluee a good explanation of the tests and their purpose, and to repeat this explanation from test to test.

Summary and Conclusions

Disability resulting from cerebral vascular accident or traumatic brain injury presents a challenge to the rehabilitation profession. The etiology of CVA and TBI alone constitutes a need for team involvement and special programming for rehabilitation facilities accepting closed head injured persons. The current movement in rehabilitation towards resolving head trauma deficits has not been able to keep pace with the needs of this special population. Thus, head trauma rehabilitation programs are enjoying growth and receptivity in federal and private insurance benefit programs.

Resolution strategies of head trauma residuum require a comprehensive team effort in which various professional disciplines are represented. Whether the team is structured as multidisciplinary, interdisciplinary, or transdisciplinary rests with the medical directors and hospital/facility administrators, who depend on medical coverage from physical medicine and rehabilitation specialists. Further research and data analysis of team efficiency is needed before valid conclusions can be assimilated.

Vocational evaluation of this special population is difficult due to the manifestations of head trauma residuum. Evaluators encountering closed head injured and stroke patients will need additional training to effectively apply test results for interpretive purposes. Particular areas of training should include addressing the various behavioral responses to activity typified in head injury disabilities.

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EFFECTS OF LEVEL OF ACCULTURATION AND ACCEPTANCE OF DISABILITY ON VOCATIONAL EVALUATION AMONG INDIVIDUALS OF MEXICAN AMERICAN ORIGIN

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Abstract

It is thought that Mexican Americans experience low application rates for rehabilitation services. In addition, it is known that Mexican Americans demonstrate widely varying degrees of acculturation to Anglo American world views and values. There has been much speculation among rehabilitation practitioners concerning the role that the Mexican American culture plays in acceptance of the disability by the individual with a physical impairment. Three efforts in mental health counseling have shown that the provision of more culturally relevant and sensitive services was associated with greater use rates among Mexican Americans. Up until recently, there were no studies in rehabilitation that attempted to empirically demonstrate this relationship, but it was reasonably assumed that the provision of more culturally sensitive and relevant rehabilitation services would result in higher Mexican American application rates. The purpose of this paper is to present information related to a recent study which researched the effects of level of acculturation and acceptance of disability in the utilization of rehabilitation services among individuals of Mexican American origin. It is believed that vocational evaluators who have access to this information might approach vocational assessment and evaluation from a different perspective.

Introduction

One of the philosophical assumptions of public rehabilitation is that of equal access to services for all Americans. In contrast to this, research has shown that all minorities, including Mexican Americans, tend to underutilize rehabilitation services (Lafitte, 1983; Linsky, Arnold & Hancock, 1983; Rivera & Cespedes, 1983; Suazo, 1986). Thinking only in terms of workforce utilization, it is apparent that a vast American potential is being wasted.

Any service must be presented to its constituency in a manner which will allow the constituents both the awareness of services available and the motivation to utilize the services. Rehabilitation is no exception.

Public rehabilitation consists of a system of knowledge, beliefs, norms, values, attitudes, techniques and procedures. Thus, rehabilitation services are part of the dominant culture and are, to a great extent, determined by Anglo American world view and values. One set of cultural beliefs may determine the way in which services are provided while differing, and perhaps conflicting, sets of cultural beliefs of potential clients may influence how these services are utilized.

Central to the rehabilitation process is the disabled individual's reaction and adaptation to his or her disability. It is known that individuals differ in their reactions to disabilities (Dembo, Leviton & Wright, 1956; Dohrenwend & Dohrewend, 1969, 1974; Linkowski, 1971, 1987; Safilios-Rothchild, 1970; Woodrich, 1982; Wright, 1960). In addition, the degree of acceptance of disability may influence the individual in his or her decision to apply for services and subsequently enhance or retard the success of the entire rehabilitation process. Linkowski (1987) states: "Acceptance of disability is assumed to be an important 'mediating' variable. It can assist researchers and practitioners in understanding the connection between the person's disability and self-perception and, further, in predicting independent living, educational, and vocational rehabilitation program-related outcomes" (p. 1).

It is safe to assume that attitudes and perceptions of the Mexican American toward his or her disability are determined to some extent by the Mexican American culture (Chacon, 1981; Harward, 1969; Rivera, 1973; Smart, 1988; Turnball & Turnball, 1987; Zayas, 1981). Arnold (1987) concludes:

> Cultural elements such as language, family roles, sex roles and beliefs and acculturative stress can play a significant role in the etiology, symptom manifestation, and rehabilitation treatment of disabilities. Culture can influence (a) the beliefs about causation, (b) the conditions that qualify as "sickness," (c) the expectations about what the affected person should do, and (d) the expected actions of others in response to that person's condition (Mumford, 1981). Essentially, it is believed that when sociocultural elements are included in the assessment and rehabilitation process, clients will be more accurately evaluated and effectively rehabilitated than when these elements are excluded. (p. 15)

Acceptance of disability may influence application rates, drop-out rates, and successful closure rates. Level of acculturation may affect not only application, drop-out, and success rates, but also acceptance of disability, desire for an ethnically similar rehabilitation counselor, and other factors deemed critical for rehabilitation success.

While there are no studies reported in the rehabilitation literature that investigate the relationship between provision of culturally relevant services and application rates, there have been such studies reported in the mental health counseling literature. Burruel and Chavez (1974), Morales (1978), and Ponterotto (1987) view the underuse of mental health counseling services by Mexican Americans as the consequence of the culturally irrelevant services offered by monocultural Anglo American counselors. Ponterotto concludes: "It follows, then, if counseling services were more culturally sensitive and relevant, rates of use would increase" (p. 308). Indeed, three efforts (Laosa, Burstein, & Martin, 1975; Martinez, 1977; and Morales, 1978) to provide more culturally relevant services to Mexican Americans did produce increased rates of use.

It is reasonable to assume that the same relationship between provision of culturally relevant services and application rate would be found in rehabilitation. Moreover, in rehabilitation, such culturally relevant services would include an understanding of the individual's perception and acceptance of his/her disability.

The Problem

Considering the number of Mexican Americans in the United States and the low utilization rate of rehabilitation services by this population, further investigation into the role of culture and acculturation and its effect on acceptance of disability is therefore warranted. If a deeper understanding of the Mexican American culture and its impact on each disabled Mexican American could be obtained, culturally relevant rehabilitation services could be extended and, hopefully, utilized. This is a relationship that needs to be clarified.

To date, there has been only one study which attempted to provide empirical evidence concerning the relationship between the Mexican American individual's level of acculturation to Anglo American values and his/her acceptance of disability (Smart, 1988). This paper will present the results and background information related to this research and its application to vocational evaluation service delivery. It is believed that vocational evaluators who are aware of this information will be able to provide more culturally relevant and sensitive services.

Demographics

Once considered a small minority, Hispanics in the United States are increasing in number and also emerging as a political and social force. Many demographers predict that by the advent of the twenty-first century, Hispanics will be the largest minority in the United States. Indeed, in the southwestern United States they already are the largest minority. Mexican Americans comprise sixty percent of the Hispanic population, thus forming the major contingent. Schreiber and Homiak (1981) make this observation concerning the population growth of Mexican Americans: "No other ethnic group distinguished by the United States census has as high a fertility rate as Mexican Americans" (p. 270).

In summarizing the sociodemographic characteristics of Mexican Americans, it is apparent that many Mexican Americans experience a cluster of problems including low income, lack of education, employment in physically demanding and dangerous jobs, unemployment, poor health, poor health care utilization, and lack of insurance coverage (Angel, 1985; Angel & Cleary, 1984; Bean, Stephen, & Opitz, 1985; Castillo, 1983; Dicker & Dicker, 1982; Dixon & Bridges, 1979; Gann & Duigan, 1986; Garcia, 1984; McLemore & Romo, 1985; Moustafa & Weiss, 1968; Schreiber & Homiak, 1981; Suazo, 1986). Thus, there is a great need for rehabilitation services and yet, at the same time, there is an underutilization of such services.

Acculturation

In order to provide culturally relevant rehabilitation services, some judgment or measurement of acculturation must be made. Differing, sometimes conflicting, definitions have been utilized. These have included such diverse variables as generational level, language usage, attitudinal and cultural preference (Ortiz & Arce, 1984; Szapocznik & Kurtines, 1980) and socioeconomic mobility (Grebler, Moore & Guzman, 1970).

Nonetheless, judgments of acculturation were often made on the basis of a single

variable, most often language spoken. Moreover, such judgments were often subjective, meaning that a single individual made the judgment, often in a highly informal, unidimensional, and qualitative manner.

With the advent of sophisticated, multidimensional acculturation instruments, it is now possible to more accurately, objectively, and quantitatively measure an individual's level of acculturation, employing behavioral, demographic, and psychological variables.

Arnold (1987) asserts that the construct of acculturation, like the construct of intelligence, will eventually come to be defined as it is measured. He has observed that at one time intelligence was a concept of much debate. The concept of intelligence has evolved to the point where it is often viewed as "what intelligence tests measure". Furthermore, intelligence tests are widely used as an important assessment tool. Likewise, the concept of acculturation, in his view, will evolve to the point where it will be operationally defined by the procedures which measure the construct. Such measures of acculturation will become important assessment techniques.

Level of acculturation of Mexican Americans with physical disabilities may impact the rate of application for rehabilitation services, the drop-out rates of those declared eligible for services, and also the number of successfully rehabilitated closures.

Acceptance of Disability Among Mexican Americans

There has been much discussion concerning the acceptance of disability among Hispanics and Mexican Americans. There are many who posit a difference between Anglo Americans and Mexican Americans in the acceptance of disability. Thus, differing levels of acculturation among Mexican Americans to Anglo American values might be associated with differing levels of acceptance of disability. However, there are no empirical studies to support this hypothesis.

Five factors may be associated with acceptance of disability among Hispanics and Mexican Americans. These are: 1) well defined sex roles, 2) a stoic attitude toward life in general, 3) a familistic, cohesive, protective society, 4) religious views, and 5) reliance on physical labor. Obviously, there is a great deal of ambiguity and disagreement among researchers as to the definition of each of these factors and the role they play in the acceptance of disability. Each of these will be briefly discussed below.

Well defined sex roles. Rivera (1983) and Schreiber and Homiak (1981) observed a relationship between the well defined sex roles of men and women in the Mexican American culture and the acceptance of disability. Many Hispanic men have been taught that it is their responsibility to provide all the resources for the family. Women are to be homemakers. Rivera stated: "The experience of a disabling condition may have a greater impact on an Hispanic male's self image than it would on persons who perceive themselves in their roles less stringently" (p. 66).

Stoic attitude toward life in general. Clark (1959), Harward (1969), and Saunders (1954) found stoic attitudes toward life in general and an attitude of resignation, acceptance, and "nothing can be done" toward health problems and disabilities. Problems should be borne with courage and dignity. Harward reported: "The lower class Mexican American in times of stress and misfortune tended to view difficulties as part of the life package which fate had decreed. There was less inclination to question or berate than among Anglo Americans" (p. 8).

Familistic, cohesive, protective society. Rivera (1983) and Rivera and Cespedes (1983) declared that the Mexican American family plays a very important role in the rehabilitation outcome. Collier (1983), Cruz (1979), Rivera (1983), Schreiber and Homiak (1981), Turnball and Turnball (1987), and Zayas (1981) characterized the reaction to disability of the tightly-knit, family-oriented Hispanic culture as that of providing support and comfort at home. Cruz (1979) made this statement: "Hispanic families tend to overprotect and paternalize their disabled. Even if a disabled individual wants to learn to be independent and self sufficient, he is seldom allowed to do so" (p. 33).

Religious views. Baca (1974), Cruz (1979), Schreiber and Homiak (1981), and Zayas (1981) all point to the role that religion plays in the definition, response, and acceptance of disability. Many disabilities are viewed as having a theological etiology. Cruz (1979) stated: "In many areas superstitions persist that disability is a punishment for some unnamed wrong" (p. 33). Lafitte (1983) makes this statement:

> The reaction to a physical or mental disability varies in different cultural environments. In the Hispanic milieu, a disability is often seen as divine punishment for one's sin--usually the sins of the parents of the disabled individual. This is an area where the specific subcultural characteristics of the Hispanic client are of paramount importance to the counselor in order to understand and identify the individual pattern of the client and help him reach higher levels of adjustment. (p. 54)

Reliance upon physical labor. It has been shown that Hispanics are overrepresented in physically demanding jobs which have a high risk of illness, disability, and fatality. Hispanics also have lower levels

of education. For any individual with a disability, the resources that he or she has and the number of options open to him or her will probably influence the acceptance of disability. Those individuals with few resources, such as employment opportunities and training options, might accept disability differently than those who have a great number of opportunities and options open to them. For those Hispanic and Mexican American individuals who have earned their living by physical labor and have little proficiency in English, a physical disability may preclude many employment and training opportunities. Indeed, the disability may represent more than a physical loss. Zayas (1981) reported: "You have to remember that Hispanic men, in a great many cases are laborers. What these men are trying to do is regain the attributes they had before the disability. . . They have lost the status that they had."

Thus, it can be seen that the review of the literature relating to these five variables strongly suggests marked differences between Mexican Americans and Anglo Americans.

The Research

In the study which attempted to understand the relationship between acculturation and acceptance of disability, Smart (1988) complied with Ibrahim and Arredondo's (1986) recommendations for ethical standards in cross cultural research. Likewise, guidelines offered by Padilla and Lindholm (1984) were incorporated into the design and methodology of this project. These included: 1) The use of bilingual, bicultural rehabilitation counselors who are also members of the community as data gatherers. It is thought that more valid responses can be obtained from an ethnically similar data gatherer. Furthermore, if the subject is not literate in either Spanish or English, items of the instrument may be read to the subject in Spanish or English, or a combination of the two languages. 2) The use of a intra-group study. Only Mexican Americans were included as subjects. No comparisons were made to any other ethnic or cultural group. Thus, this design is responsive to the criticism raised by Hispanics that the dominant, or the Anglo American, culture is often used as a definitive standard of evaluation. No such comparisons were made in this study. 3) The provision of instruments in both Spanish and English. Thus, monolingual Spanish-speakers may be included in this study. Subjects may elect to use the language in which they feel most proficient. 4) The careful definition of the group being studied. In the past, researchers have not studied the various subcultures of the Hispanic culture separately. Since these subcultures vary greatly, many important differences have been overlooked and interpretations of results are of questionable value. In the present study, only Mexican Americans were included. In addition, criticism has been leveled at the various methods used to define the population under study. In the present study, only self-identified Mexican Americans were included. Thus, a consistent effort was made to adhere to both sound research methods and high ethical standards of cross cultural issues.

Twenty-nine Mexican American clients or former clients with physical disabilities from two Colorado Division of Rehabilitation district offices served as subjects. Subjects completed four instruments. Two instruments measured acculturation to Anglo American values. These were the Acculturation Scale for Mexican Americans and the Acculturation Classification System. The third instrument was the Acceptance of Disability Scale which produced an objective, qualified assessment of the individual's adjustment to and acceptance of his or her disability. The final instrument, the Biographical Information Questionnaire, was constructed specifically for the study and elicited biographical information and data concerning the client's experience with the Division of Rehabilitation. No relationship was found between acceptance of disability and level of acculturation. One possible explanation why this study found no relationship between these two variables may lie in the fact that the individuals included in the study had attained relatively high educational levels. Fifty-five percent were college educated.

Smart's (1988) study stands as a preliminary approach to understanding the relationship between acculturation and acceptance of disability. Because the sample was biased by overrepresentation of highly educated subjects, there is need to go beyond such a narrow sample. In particular, there appears to be a need to sample Mexican American migrant workers who would represent a different socioeconomic and educational level. In addition, interview data to be gathered in future studies could add the deeper dimension of the Mexican American subjects' description of their personal acculturation process, their reaction to disability, and their experience in the rehabilitation program. Finally, the relationship of the two variables of acceptance of disability and level of acculturation to rehabilitation success needs to be further investigated.

Application to Vocational Evaluation

The preceding discussion highlights issues related to acculturation and acceptance of disability among Mexican Americans involved in rehabilitation service delivery. Obviously, these same issues have direct application to the provision of vocational assessment and evaluation services. Level of acculturation impacts the individual's view of work and of life, in general. Likewise, acceptance of one's

disability determines how the individual perceives work and responds to vocational evaluation and the overall rehabilitation process. If the client's perception of work is altered, it will affect how the rehabilitation professional provides services. An awareness of cultural differences and their importance in determining the individual's attitudes and behaviors cannot be emphasized enough. The rehabilitation professional, when working with a Mexican American client, is faced with the task of distinguishing what is universally human, what is culturally specific, and finally, what is idiosyncratic (de la Cancela, 1985). The rehabilitationist must be careful not to assume that his or her culturally-bound experience is an adequate guide to what is universally human.

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ECOLOGICAL ASSESSMENT OF INDIVIDUALS FROM DIFFERENT CULTURES: THE IMPACT UPON VOCATIONAL EVALUATION

NORMA L. COLYER
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Abstract

In recent years, vocational assessment services have expanded to include a greater number of limited English or non-English speaking persons from diverse cultural backgrounds. This trend is expected to continue into the future, especially in urban areas, due to the growth of minority populations as well as recent legislative mandates. The proportion of High School dropouts is often larger in groups such as Hispanic and American Indian populations. Likewise, adults from minority groups are generally underachieving in employment settings and remaining at entry-level positions. In a hierarchy of interventions, vocational assessment is of utmost importance because it can work as a facilitator to highlight vocational strengths. In addition, it can increase the chance for these individuals to access the needed support and transitional services. When assessing individuals from different cultures, it is important that language skills and cultural backgrounds are considered during the process. Culture affects an individual's approach to learning. Therefore, the evaluator should consider learning style as influenced by culture, social interactions that are dictated by the value system, and background environmental influences. Current evaluation tools are based on information from the U.S. Department of Labor as well as customs as they pertain to the technology and value system. Although these tools determine strengths and aptitudes of the individual, it is the more subtle factors which can be culturally binding which often have impact upon assessment results. It is imperative that the evaluator ascertain the individual's cultural environment. This can best be accomplished at the onset of evaluation through conducting a comprehensive interview of ecological factors.

In recent years, there has been an influx of immigrants into the United States. These people bring with them values, customs, beliefs and a unique set of personal experiences by which they interpret the social environment. When these individuals seek employment or training they are faced with the American work ethic which requires specific norms of behavior. These required behaviors may be in direct contradiction with theirs. This culturally determined expectation may further complicate their adjustment. Those values which they had accepted as truth and which were the accepted behavior in their former culture are suddenly no longer valid, and the individual experiences culture shock, a pervasive sense of helplessness which may lead to stress, depression, anger, and frustration (Adler,1986). Culture shock could be compared to the onset of sudden disability.

The influx of immigration during the past two decades is the third wave of immigrants in the history of the United States. The first lasted from 1840 to 1860 and came mainly from Northern Europe. The second from 1880 to 1920 came mainly from Southern and Eastern Europe. The latest wave comes from other parts of the world. In 1980, immigrants came from 194 nations (Allen, 1985).

According to Muller and Espenshade (1985), 34% of the new immigrants have come from Asia, 34% from Latin America, 16% from Europe and 16% from other continents. These individuals tend to settle in larger urban areas where they are likely to find support systems, such as other family members, similar cultural groups and job opportunities. As noted by Kellogg, 40% of the immigrants counted in the 1980 Census live in Los Angeles and New York and another 20% live in San Francisco, Chicago, Miami, Houston and Washington, D.C. In fact each of these cities was noted among the top 10 metropolitan areas where immigrants chose to live (Kellogg, 1988).

We don't know yet what the impact of the 1986 Immigration Reform and Control Act will be. However, it is anticipated that societal institutions will soon shoulder the burden of providing services to these populations. As a step in the hierarchy of human resource services, vocational assessment plays an essential part.

Statistics show that a significantly larger percentage of documented immigrants are between ages 16 and 24

(Muller and Espenshade). This increase may be influenced by the fact that families from war torn countries bring the orphaned children of their relatives. It is estimated that undocumented immigrants have an even younger average age (Kellogg, 1988).

Public schools are beginning to feel the impact of this influx and the strain which this places upon available resources. According to Kellogg, minority levels now range from 70-96% in the nation's 15 largest schools (Kellogg, 1988). Additionally, legislative mandates provide assurances that the needs of these individuals must be met according to their unique cultural and linguistic needs (The Carl D. Perkins Vocational Education Act, P.L. 98-524).

Individual differences

People's vocational perspective reflects their past experience. These factors are important to consider in the vocational assessment process as these persons may not only be affected by their culture but also by their individual personal experience. Likewise, these factors are important when establishing the climate for conducting the initial interview. The fact that individuals belong to a specific ethnic group does not always imply that they share the same background experiences. Beliefs, values, attitudes and degree of language knowledge, as well as education, may vary considerably from one individual to another.

Awareness of individual differences is crucial in vocational evaluation/assessment. According to Sattler (1962), factors which could influence an assessment situation are the individual's values, styles, motivation, language, mores and attitudes. In order to conduct a non-biased assessment, the evaluator must take these factors into consideration.

Vocational evaluation/assessment is in a unique position to accommodate the individual needs of individuals from different cultural groups. Culturally and linguistically different individuals do not perform well on paper and pencil tests. Often, they have been alienated by academic-related activities, or they may be illiterate in their primary language. However, the length and process of a vocational evaluation allows the evaluator to observe the individual's behavior over a period of time, taking into consideration language dominance, and cultural background. In this developmental model, the evaluator is alert to possible bias. Language and possible vocational limitations which constitute barriers can be diminished or overcome in some instances by the tools used, work samples, career exploration activities, and techniques such as demonstrations, modeling, diagrams, audiovisual equipment and other devices which tap different modalities.

Values and Customs

Culture is the way an individual organizes and interprets reality in order to communicate and interact in a meaningful way with his environment and the members of his group.

Social anthropologists have many ways of categorizing culture. Harris and Moran, (1987) categorize some of the aspects of culture as follows: Sense of Self and Space, Communication and Language, Dress & Appearance, Food and Feeding, Habits, Time and Time Consciousness, Relationships, Beliefs and Attitudes.

Societies operating at survival level give the greatest value to food and shelter. This importance is in accordance with Maslow's hierarchy of needs which starts with biological survival. Societies which have satisfied this basic need are concerned with the acquisition of material things and with establishing complex laws (Harris and Moran, 1987).

Personal space varies from culture to culture. While in Latin cultures it is appropriate to maintain close proximity to another person during conversation, other cultures may require more physical space between conversants. In some Middle Eastern cultures, it is considered acceptable, even courteous, to lean closely to a listener so that he feels the impact of a speaker's breath. The acceptability of touching another person also varies among cultures. Latin males touch each other frequently while talking, while north European males are much less likely to do this. Harris and Moran (1987) describe the American perspective concerning personal space as follows: "Americans believe that they own their bodies and they have a bubble around them that extends about two inches beyond their skin. If anyone breaks their bubble one must apologize and say 'excuse me.'"

The value attached to punctuality varies among cultures as well. Americans

place a great deal of significance on being prompt and utilizing time efficiently. This is a value inculcated in all advanced industrial societies and is rooted in the demands of coordinating complex economic activities which extend far beyond the family and community level. Now, after 200 years of time training in schooling and business life, Americans conduct most of their daily activities according to a clock-based schedule. But Latin Americans look at time in a more relaxed manner and may postpone projects until another day
In agrarian societies, time is defined by the path of the movement of the sun, rather than in hours and minutes. Time as a seasonal concept defines and influences long-range goals in global areas where work and leisure activities are influenced by marked seasonal changes

Societies emphasize present, past and future time orientation. Societies based on a glorious history are oriented to the past and do not encourage planning for the future. Tradition is important and new ideas and change are slow to take hold. Emphasis on the present discourages scheduling and saving for the future. The United states is a future oriented society. The spirit of capitalism focuses on the future (Harrison, 1985).

Social Systems

An individual's self-perception manifests itself within a culture in relationship to the particular situation he encounters at work, church, school, community, within the family, with peers, in groups or as a citizen of a particular government. These institutions in turn are the socializing mechanisms by which the society infuses values and attitudes and insures a sense of identity among its members.

In American society, material wealth is seen as evidence of virtue, and it is assumed that if the individual only works hard enough, he can attain his goal. In other societies, however, status does not always equate to wealth but is attained through family structure and leadership roles in the community. Age, likewise, may confer status, as status within the family may be more important than status in the community (Harris and Moran, 1987).

Within the family, child rearing and early childhood experiences determine adolescent and adult values. Children who come from war-ravaged countries experience more stress and view their world and future in a much different way. Unaccompanied minors, children whose parents have been killed, assume early responsibility and become head of households. In countries where the male is the authoritarian figure, boys are treated with extreme indulgence. According to Harrison (1985) in Caribbean countries, children are greatly indulged and learn to expect immediate gratification. Then at age seven or eight they are expected to be independent and are punished if disobedient. Children in these situations learn not to express independent, autonomous ideas. As parents, Americans stress cooperation and compromise (Harrison, 1985).

Attitudes toward death and life are shaped by religious dogma. Some religions prescribe specific rules of behavior which control every aspect of the individual's life from birth to death. And in some religions the course of one's life on earth is greatly influenced by specific beliefs in the hereafter. The Judeo/Christian tradition places responsibility squarely on the shoulders of believers; man is responsible for his own destiny. In contrast, some religions explain what happens to divine interference. From the US perspective, this attitude, by limiting responsibility, limits potential (Harrison, 1985).

Work Culture

Webster (1965) defines "work" as bodily or mental effort exerted to do or make something; purposeful activity, labor; toil. To "work" is to exert oneself in order to do or make something; to do work; to labor; to toil. "Worker" is defined specifically as a person that works for a living, either by hand or brain, especially one who does industrial or manual work for wages. It is important to note that this definition does not assign a value to work, rather it emphasizes "effort." It is the culture which defines whether this effort is worthwhile or a necessary evil. And the individual within that culture further assigns a value on that physical or intellectual activity depending on his specific circumstances. Some cultures encourage individualism, or the pursuit of individual career success, other cultures stress collectivism. In the latter model, the individual is subordinate to the group. Why people put forth this effort, what motivates people

to work is largely determined by the perception of the particular society.

Recent research seems to indicate that Maslow's hierarchy of needs varies from culture to culture. Societies which stress quality of life and social needs put a lower value on productivity. In some countries job security takes precedent over self actualization. Lifetime employment is more valued than risk taking and ego self actualization (Adler,1986). American children are indoctrinated in the capitalistic way early on. Parents pay children to do chores, and older children are encouraged to work part-time after school. (Harrison, 1985).

Career planning starts early in American schools and the belief that productivity and self-actualization are valuable is inculcated early. The english word for "achievement," however, is difficult to translate to other languages. In some cultures people work to fulfill basic needs, to survive, or for the concrete income that the work "effort" produces. Work as a commitment to the welfare of one's fellow countrymen and to religious duty is prevalent in countries where religion mandates this value. Thus the origin of the Puritan work ethic which now implies that hard work alone will allow one to achieve one's goal. Implicit in this assumption is the belief that the individual can control his destiny and is responsible for his actions. Some cultures do not share the belief that work in and of itself is valuable and worthwhile or that individuals can control their destiny.

Wisdom, fate, and other not so subtle attributes have an equal part in explaining individual success or failure. For example, the southern Italian peasants who came to the United States in the millions between 1880 and 1920 were extremely hardworking, but not because they valued work as such. It was because of their beliefs about fate and about how working established an individual man or woman's worth within the family and local community. A hard working person was someone whom the group - primarily the family -could count on in a harsh and difficult world. These values were in turn rooted in the economic and social circumstances which had shaped their world for centuries.

Learning Styles

The fundamental manner in which people learn is determined by custom. Children in some societies learn by rote memory. Information is presented in a manner that leaves little room for discussion or building independent thinking skills. Certain rewards and punishments are attached to the acquisition of information in a determined way. The experiential, deductive, approach to learning practiced in Western societies stresses abstract thinking and conceptualization. In contrasts Eastern cultures favor intuition, mental images and symbols (Adler, 1986). Likewise, Native American parents teach their children mainly utilizing the visual modality. As a result Native American children develop strenths in the visual modality and often demonstrate weaknesses in the use of verbal language. (Mattes and Omark, 1984).

The Interview Process

The awareness of cultural differences impacts the assessment process most critically during the interview. The initial interview is one of the most important aspects of the vocational assessment process. During the interview, it is essential that rapport be established. A respectful, caring relationship facilitates an atmosphere for which people who do not share our common values/belief system can feel less threatened and at ease to express their views. This requires a great sensitivity on the part of the evaluator.

Furthermore, evaluators must have an awareness of the impact their culture has on the interpretation of their own reality and that of others. Ethnocentrism, the emotional attitude that one's own race, nation, or culture is superior is the absence of that awareness. Awareness establishes a point of reference without which the evaluator cannot identify differences in other cultures. Awareness diminishes cross-cultural misinterpretations.

Effective interview skills are fostered by an open minded approach on the part of the evaluator. A receptive climate should be encouraged so that the evaluee feels free to openly express his interests, strengths, difficulties and concerns.

According to Plata (1984), the interviewer should be aware of both verbal and nonverbal modes of communication. Familiar jargon, idioms and colloquialisms should be avoided to

reduce the already existing complexity of the English language. Likewise, written information should emphasize simple wording, language and sentence structure to ensure the individual's understanding of the intended question.

Establishing rapport is the goal of the interviewer. However, sensitivity to the individual's cultural values and customs must be maintained to de-emphasize approaches which may be viewed differently from the norm. As Plata notes, if the individual appears uncomfortable maintaining eye contact, eliminate this as a priority. If a question appears too personal, skip it and proceed to a less sensitive topic. Commonly used gestures should be avoided to reduce the risk of misinterpretation. For example, Yao (1988) notes that using the index finger to call another person may be perceived as an insult by an Asian individual, as this gesture is used with animals. Furthermore, some Asian individuals may avoid eye contact, thinking it impolite.

Every effort should be made to make the individual feel comfortable and non-threatened. Allow the individual to express himself freely, utilizing any standard or variety of language with which he feels to experience the individual's world and share their experiences, rather than judge them.

When we consider culture in the interview process, it is important to consider these ecological factors. The variables which constitute an individual's ecology include values, beliefs, customs, social systems, and manner of communication. These constructs combined with physiological determinants in turn determine an individual's style of working and learning. This is the essential mission of the assessment process.

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Vocational Assessment for the Severely Physically Challenged: An Alternative Model

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Abstract

The purpose of this paper is to describe the vocational assessment process utilized at the Project EYE Transition Center located in Canton, Massachusetts. The Project EYE Transition Center was created two years ago in order to meet the competitive employment needs of severely physically challenged young adults who are graduating from special education programs or those unemployed or underemployed after leaving school. The goal of the program is to provide evaluation and employment services which will assist the consumer in obtaining non-subsidized, competitive employment in their local community. The program is currently completing the third year of a three year grant cycle funded by the Department of Special Education and Rehabilitation Services in the category of Special Projects and Demonstrations for providing Vocational Rehabilitation Services to Severely Disabled Individuals.

A review of the history of vocational evaluation reveals many inefficiencies and inequities when using standard procedures to predict employment potential of the severely physically disabled. One major inequity is that standardized testing focuses on aptitude and skill level rather than functional skills and work potential. In order to address this need, a major objective of the project was to develop an alternative model of assessment that would focus on determining the functional ability of the individual and using that information to predict the work potential. This assessment process includes three components: a) selective standardized testing, b) worksampling which is designed to be adapted or modified, and c) situational assessment that is time limited and community based. The approach is individualized and flexibility and creativity are key factors to its success. It is labor intensive and thereby utilizes the entire rehabilitation team, including employers. The vocational evaluator serves as assessment coordinator required to draw on non-traditional skills (marketing and job development, counseling interventions and resource coordination) in conjunction with traditional assessment techniques.

INTRODUCTION:

The difficulties inherent in assessing the vocational potential of an individual with severe physical disabilities are well documented throughout recent literature (Frank 1987, Ayella, Le Conte 1987, Alfred 1986). All too frequently the use of standardized testing, worksampling and even situational assessment in sheltered environments has served to rule out the candidate from serious consideration for competitive employment or more significantly rule them out of eligibility for vocational rehabilitation services altogether. (Ayella LeConte 1987). When Project EYE Transition Center was created in 1986 one major component of the project was to continue to develop an evaluation model that will predict and enhance the vocational potential of the severely physically disabled individual. The following documentation will illustrate this alternative process with case studies of consumers who utilized the Center's services.

Beginning the Process: The Initial Interview

Once referred, an individual takes part in an initial interview, thus allowing the four person placement team to meet the applicant and vice versa. It is designed similarly to a job interview however the content is more comprehensive. The main purpose of this interview is to explore the pertinent issues essential to job placement i.e. accommodations needed, medical management, transportation along with identification of vocational interests and qualifications. We look here not only for information but for a sense of the applicant's awareness of their environment in general. Through this process we note any external obstacles to employment; i.e. lack of transportation, and prioritize needs; i.e. is the applicant medically stable enough to consider permanent employment either on a part or full time basis. These interviews also begin the process of determining the level of services the applicant may need to obtain and sustain employment based upon the individuals self-awareness of their own needs and their environment. Research on the current project shows that two key factors significantly affect job longevity. Successful candidates demonstrate 1. an awareness of their environment and understand its impact on work 2. motivation to maintain employment based on previous personal history.

Use of Selective Standardized Testing and Worksampling

The next step is a six to eight hour period of testing and thorough review of all available records. Testing includes both written tests and worksampling. The worksample system utilized is homemade and specifically designed to be adapted as needed. Written tests are also modified as needed. Expanded time lines, writers, enlarged print, line grids etc. are the rule rather than the exception. Normative information is rarely used and results are viewed functionally rather than in standardized fashion. The major purpose of this part of the assessment is to "get to know" the applicant. It serves somewhat like a pre-employment screening to determine skill levels, interest areas and temperament. The information provided by this assessment is mostly used to develop one or more appropriate situational assessment sites. Occasionally this segment underscores an area of need which must be addressed prior to any development of a placement. For example, C.G. was referred to Project EYE Transition Center while still in High School. He was diagnosed with Cerebral Palsy and was a functional quadriplegic. His intellectual functioning was below average. C.G. was assessed at an adapted computer and demonstrated potential to operate user friendly programs. He however had minimal exposure to vocational applications on the computer. C.G. was immature both in his vocational goal setting and in self-awareness and self-advocacy. Therefore it was recommended that he receive vocational training and career awareness education prior to entering a program with the goal of community placement.

Situational Assessment: The Value of Observation

Phase three of the evaluation process is one or more time limited assessment opportunities. Whenever possible these are conducted in a community based setting. The Washington State Project research has demonstrated that "community based time limited vocational assessment" is effective and provides "visible community integration of those involved" (Fry, Ruddy 1987). Moreover, the multi-physically disabled individual has had little or no opportunity for vocational development. Because of the lack of evidence to support vocational potential a multi-model approach is recommended. (Flynn et.al 1983) The assessment approach needs to be comprehensive and multi-phased, utilizing a variety of resources to develop an optimum assessment tool. (Finn and Destefano,1986) The importance of a community orientation is well documented. The evaluation unit must be relevant to the community it serves. Rudrud (1987), states that job opportunities in the community should be researched prior to implementing a job training and placement program. Worksamples and job evaluations and job analysis are key tools that are utilized during this process. We have found that community based situational assessments provide a concrete reality test for the applicant while providing an assessment of work tolerance, interpersonal skills and interest in the job. A very valuable effect of this type of evaluation is that our candidates have gained self confidence both in their skills and work readiness.

In one example Bill, a 23 year old male, was referred to us for evaluation. He has been diagnosed with Spina Bifida since birth and uses bilateral crutches to ambulate. Bill was a graduate of a local high school with no particular vocational training although he had taken shop courses. Previous vocational testing supported aptitude and skills in the manual trades and recommended training in this area. Bill had been employed in a factory but quit because advancement possibilities were not offered and he was in jeopardy of loosing subsidy and medicaid without job security. Bill had been turned down by a Private Industry Council machinist training program because of his disability. After record review and some updated testing Bill took part in a three week tryout in an adaptive design workshop on the grounds of a rehabilitation facility. He performed entry level machine operations and also completed a special project from sketches. Simultaneously, as part of his assessment, Bill tried out a data entry job in the offices of Project EYE Transition Center even though he had no prior computer experience. When working on the computer, Bill understood how to use the program but his performance was very slow and hampered by his limited education in business operations and business English. He chose to discontinue this task. In the design workshop however Bill performed with skill and was offered a part-time position. Bill chose however to enter machinist training (the same which turned him down earlier) which this evaluator encouraged. Bill is currently employed in a

machine shop with potential to learn computer assisted manufacturing. His salary is $7.00 per hour.

Bill was rewarded with direct feedback from an employer in his field of interest, which gave him the confidence to advocate for appropriate training and to risk financial independence. Evidently, the evaluation process described was successful in creating the opportunity he needed to build his confidence.

The Multi-Faceted Role of the Evaluator: A Key Factor

A key difference of this type of evaluation is that it is highly individualized and labor intensive. It relies heavily on the flexibility of the applicant and the employer and on the creativity and energy of the placement team. The vocational evaluator uses skills not traditionally called upon in the standard assessment procedures. In traditional evaluation the evaluator provides a needs assessment, develops an individualized evaluation plan, selects tools from their test library, work sample systems or workshop tasks, carries out the plan and reports results. This process is primarily a one person operation and the resources are found within the confines of the rehabilitation facility. In the alternative model we describe, the evaluator may more aptly be titled resource coordinator. S/he is called upon to recruit employers, coach applicants, coordinate community resources like transportation, provide counseling interventions as needed etc. At all times the input of the placement team (a job developer, rehabilitation counselor, transportation coordinator and program director) as well as other outside agency personnel and employees is solicited and utilized. This is a highly challenging and rewarding process when it is utilized.

Resource Coordination: Defining Options

In a brief example Jimbo, a 26 year old man who is quadriplegic as a result of Spinal Cord Injury , came to Project EYE Transition Center because he was uncertain of his vocational potential. Jimbo worked in a basic skills job from the time he quit high school in the tenth grade. He was educationally disadvantaged however,he had had a successful six year work history and was to be promoted to supervisor at the time of the injury.

Jimbo was interested in further schooling but also in exploring vocational options available to him. As part of assessment we obtained, on loan, an optical light pointer to provide computer access. Jimbo learned to use a data base program, and performed data entry. Like the previous case, Jimbo's limited educational skills hampered his competitive production rate However, Jimbo was inspired by his ability to use a computer in a business application. Recommendations included an assessment of the most appropriate technology for Jimbo to use in school or in the workplace. Tutoring in basic academics and business practices was suggested. Job titles in customer service, inventory control and parts order and stock clerk were identified.

Rewards: Developing Self Confidence and Reality Testing

John's case illustrates the cumulative nature of the evaluation process. John is a 19 year old male who had a Cardio Vascular Accident at an early age. He has a right sided hemiplegia primarily effecting his arm and hand and significant learning deficits as well, especially in reading. John expressed interest in electronics assembly and also in child care although the lattar was primarily an interest because it seemed "easy to him". We developed simultaneous situational assessments, one at a local daycare center and the other at a local manufacturer of testing equipment. After two weeks John reported frustration at the day care center and that site was terminated early. At the manufacturer John was required to complete semi automated circuit board assemblies. The evaluator was required to attend all tryout, to train and assist John with his task. On day one John was required to assemble by hand the connectors to the PC board. This requires fine finger dexterity with small parts and at first glance seemed to be a two handed task. Despite the suggestions of several simple adaptations John became obviously frustrated. For the evaluator much of the day was spent acting as counselor, listening and empathizing while this young man experienced an event which underscored his disability and caused him pain and frustration. John then took a brief self initiated sick leave. He returned with renewed energy and various compensatory strategies to try out. After ten to fifteen hours of tryout, John had demonstrated the ability to complete all aspects of the assembly. His speed on manual

tasks was well below competitive standards. However with time, appropriate adaptations and job modifications and continued support the Project EYE Transition Center team is comfortable recommending placement as an entry level semi automated electronics assembler or related position. John's frustration tolerance and perserverence were clearly identified as vocational strengths as was his ability to compensate for his physical limitations.

Summary

We believe that we have designed a vocational evaluation model which enables the severely disabled to become actively involved in competitive, community based employment. Our success rate has encouraged state vocational rehabilitation personnal to take more risks with this hard to place population. For the job applicant, this process is often a positive experience which builds confidence and self advocacy skills. For the evaluator, this process offers the challenge of utilising the full repertoire of rehabilitation counseling and evaluation skills. Moreover the evaluator is not alone carrying the sometimes weighty responsibility of determining the vocational potential of someone but is part of an active forward looking team whose goal and expectation is competitive placement for all applicants.

In summary, this approach to assessment has several benefits: 1. The assessment mirrors the natural process used in assessing non-disabled workers; that is the interview, pre-employment screening and performance evaluation regularly required for job applicants. 2. The assessment is functionally based and identifies work skills and behaviors, motivation and physical capacities. 3. The external factors affecting work entry, i.e. transportation, family and social factors, medical issues are throroughly assessed and appropriate intervention is identified. 4. The prediction of competitive employability has been relatively high: 99% of persons evaluated using this method have maintained employment for a minimum of eight months. 5. The consumer has concrete experience upon which to build confidence, increase self-esteem and clarify interests. 6. For the evaluator, this approach offers an opportunity to be professionally challenged and function as a team member. In this model the evaluator is no longer an isolated consultant but coordinates all aspects of the assessment process.

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Abstract

A Vocational Assessment Tool for Severely and Profoundly Developmentally Disabled Populations

This paper will focus on information regarding the development of a vocational assessment tool for severely and profoundly developmentally disabled populations. This assessment tool, the Illinois Vocational Interest Survey and Assessment (IVISA), was developed to comply with the Carl Perkins Act, accrediting agencies and the Illinois State Board of Education, Department of Adult, Vocational and Technical Education guidelines. The IVISA was developed by vocational staff within the Illinois Department of Mental Health and Developmental Disabilities (DMH/DD), and addresses standards regarding interests, abilities, special needs, work-related behaviors and work skills, as well as present and future employment options. The specific items are organized in four broad occupational areas: Home Economics, Business, Horticulture, and Industrial. The IVISA will be used at approximately thirteen DMH/DD sites in Illinois to help place students in appropriate vocational programs based on their needs, interests, and abilities.

The Illinois Vocational Interest Survey and Assessment (IVISA) was developed within the State of Illinois by the Department of Mental Health and Developmental Disabilities. This department is charged with assuring the rights of and meeting the needs of mentally ill and developmentally disabled persons within the State of Illinois. Besides licensing residential and program service agencies in communities, Illinois operates over twenty residential facilities. Within certain of those facilities reside individuals who are severely and profoundly developmentally disabled, many of whom have compounding physical and sensory limitations. It is believed that this population, with its special needs, retains the right to learn and develop vocational skills. It is also believed that an accurate vocational assessment is paramount to beginning vocational education and the results of such assessment are valuable aids in planning for each person's individual goals and objectives. The purpose of the IVISA is to measure the existing vocational skills and to determine possible areas of vocational interest for this targeted population.

To assure that the assessment process adheres to established standards, various accrediting and certifying bodies were researched and applicable guidelines were The Illinois Vocational Interest Survey and followed in the search for an appropriate assessment tool. Reviewed were guidelines from: the Health Care Financing Administration, the Accreditation Council for Persons with Developmental Disabilities, the Illinois Department of Public Health and the Illinois Department of Public Aid. Also reviewed were the requirements of the Carl D. Perkins Vocational Education Act. The Act, signed October 19, 1984 stipulates that vocational assessment must be comprehensive, ongoing, and systematic and should include cumulative data review, career interest testing, aptitude and ability testing, as well as information from the individual being assessed.

In conjunction with the Carl D. Perkins Act, the Illinois Department of Mental Health and Developmental Disabilities (DMHDD) cooperated with the Illinois Department of Adult Vocational and Technical Education of the Illinois State Board of Education during 1987 to locate a standardized vocational assessment tool that is appropriate for the targeted individuals. Since no standardized assessment appeared to meet this population's special needs, a task force under the auspices of the Illinois DMHDD Education Services Board was developed to compile an assessment tool. This assessment tool is based upon (1) a

review of standardized vocational assessments for mildly and moderately developmentally disabled people and (2) vocational assessments developed in-house by long-term care state operated residential facilities in Illinois.

Based upon standards and guidelines reviewed, the following objectives were set for the development of a vocational assessment system:

1. The vocational assessment tool must be useable with (a) individuals who have severe and profound developmental disabilities, (b) individuals that are not enrolled in a vocational education program and therefore may not be familiar to or known by the testor, and (c) individuals who may appear an unresponsive and passive population.
2. The tool must be developed to supplement and provide additional information that may not be provided in a standardized assessment.
3. The scoring system must: be modeled after a standardized form in order to be recognizable, have a cumulative score to rank recipients, be reflective of the model assessment tool, be commonly known to most vocational staff, and not require special interpretation.
4. The tool must have line items that are small measurements in order that after each annual assessment, progress can be noted from the previous assessment, thus verifying appropriateness of continued approved enrollment.
5. The tool must reflect the recipient's interest by one of four occupational areas, such as: Business, Industry, Home Economics, Horticulture.
6. The tool must assess employability skills.
7. The materials in the tool must be cost feasible.
8. The tool must be relatively short in application time.
9. The tool must address standards regarding work interests, abilities, skills, work-related behaviors, special needs, present and future employment options.
10. The tool must produce results that interdisciplinary professionals can use to determine the appropriateness of vocational programming.

Thus, the IVISA was developed and consists of three components. The first part, "Vocational Skills and Abilities" consists of eighteen tasks that measure reaching for, grasping, manipulating, transferring, disassembling and assembling simple work items. The second section is divided into the four categories (Industrial, Business, Home Economics, and Horticulture). Each section has eight test items that determine abilities to perform tasks related to the category. The Industrial line items focus on putting objects in containers, snapping lids on bottles, etc. In the Business component, the individual is assessed for skills such as: folding paper, using a rubber stamp, scissors, paper clips, mailing labels, and glue. The Home Economics section measures stirring, wiping, stuffing, and sewing. Horticulture line items call for the person to pour, measure, sort seed packets and other related tasks. Results of this second section, "Occupational Interest Survey and Assessment," reflect the greatest area of the person's expertise and/or interest. The remaining section is "Employability Skills" and consists of a checklist of fourteen work habits, the cumulative results of work interest review and/or interview, any career expectations expressed by the person being assessed, strengths, special needs, and present/future employment options.

The materials used to administer the first and second part of the IVISA consist of: tubs/bottles with screw-on or snap-on lids, paper, labels, stamp and pad, scissors, envelopes, paper clips, index cards, glue stick, plastic gloss and spoon, washcloth, sponge, needle, yarn, plastic mesh, wooden block, dowel rod, metal/wooden bolts and nuts, plumbing pine, plastic roller, felt-tip marker, water, paper towels, flower pots, plant stakes, seed packets, silk flowers, measuring pitcher, cloth, and a spray bottle. The test items are grouped according to the order of the IVISA line items, and packaged in plastic bags. All test items, the instruction manual, and score sheets are packed into a washable duffel bag. The finished product is portable and light weight, reusable and replaceable and the initial expenditure was affordable. Five IVISA "bits" were given to various Illinois facilities in March, 1988. A part of each bit was a video tape, demonstrating the administration of each line item. Training was also provided to vocational staff and a state-wide network established to answer questions or provide information as needed.

Remaining IVISA kits were disseminated in April of 1988. Field testing continued through December of 1988. In January of 1989 the IVISA began review based upon input from all facilities conducting field testing. Researchers have been contracted to study the IVISA field test results for reliability and validity.

It is hoped that the IVISA will reflect each person's learned skills, potential, areas of needs, and reveal an area of interest or preference for work related tasks. Also a high score on the IVISA may indicate the need for administration of a standardized vocational assessment. The IVISA may also be administered to measure information and skills that were not revealed during a standardized assessment and thus serve as a supplement to a standardized assessment. The IVISA may document that some individuals will lack basic reaching, grasping and manipulation skills. This information can be then used by interdisciplinary teams to determine the appropriateness of vocational education, or the need for training of prerequisite skills.

The IVISA, in its initial form, has been copyrighted for the Illinois Department of Mental Health and Developmental Disabilities.

Initial feedback from Special Educators, Vocational Instructors, and Rehabilitation Counselors and others who have actually administered the IVISA have been very positive. Upon results of the contracted researchers, any necessary revisions to the IVISA will be made. It is expected that norming studies will show relative correlations. It is also hoped that the IVISA will provide insight for professionals and staff who work with severely and profoundly developmentally disabled people.

VOCATIONAL EVALUATION OF PERSONS WITH COMBINED HEARING AND VISUAL IMPAIRMENTS.

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Abstract

Increasing numbers of clients with both hearing and visual impairments, some congenitally and some adventitiously disabled, are being referred for vocational evaluations. It is imperative that specific information be obtained during the initial intake interview, so that an appropriate evaluation plan can be developed and assessment tools can be selected. Modifications of instructions, tasks, and use of tools are often necessary. Adaptations made in the vocational evaluation process should be incorporated into the recommendations for future vocational training and job placement.

Many vocational evaluators are not prepared to work with persons with hearing and vision impairments. Evaluating persons with sensory limitations are a challenge and it often requires an understanding of the unique difficulties in communication, mobility, and general orientation of this population. As the priorities of rehabilitation services continue to shift to serve individuals with severe disabilities, more and more persons with vision and hearing impairments will be requiring vocational evaluations.

There has been an increase of services available to persons with hearing and vision impairments in recent times. Sisson, Van Hasselt, and Hersen (1987) speculated that the dramatic increase in clinical and investigative endeavors for persons with severe and profound disabilities was due to three factors. The first was the changing of public and professional opinion about the potential of these individuals. The second factor was a need for greater accountability in providing humane institutional service for this population. The impact of the 1964 -1965 rubella epidemic in the United States was the third factor. In addition, the evolving medical and mechanical technologies are making it possible for persons with severe disabilities to be more mobile and integrated with society.

A DIVERSE POPULATION

Persons with dual sensory impairments are often diverse in functional limitations and abilities Stachlecker, Glass, & Machalow (1985). Nelipovich and Naegele (1985) listed examples of the variations found within the broad descriptor "deaf-blind" to include congenital deafness-blindness, adventitiously impaired due to illness or accident, congenitally aurally impaired and adventitiously visually impaired (ie. Usher's Syndrome), and those congenitally visually impaired and adventitiously aurally impaired. Ten of the over 50 known forms of genetic deafness involve both hearing and vision. Consequently, vocational evaluation planning for this population should take these differences into account.

Sisson, Van Hassel , and Hersen (1987) accentuated that a person's ability to function with visual and/or auditory impairments is unique and dependent on such factors as degree of sensory loss, intellectual level, intervention available and the presence of other handicapping conditions. Vocational evaluation for persons with multiple handicaps needs adaptations of assessment tools and methods of administration (Cheung, 1983). The analysis of referral information and intake interview are important initial steps in developing the individual vocational evaluation plan for persons with hearing and vision impairments.

THE INTAKE INTERVIEW

Andrew (1973) highlighted three goals for the initial interview: a) to build a foundation for the helping relationship, b) to begin to open up all of the psychological realities in the client's situation, and c) to clarify the structure of the helping process. When working with persons with communication deficits this may also include modifying standard conditions to optimize the persons potential.

Watson (1976) points out the importance of collecting a variety of biographical data in the vocational evaluation of a deaf client. Prior to the development of the individualized vocational evaluation plan (IVEP), a through intake interview is necessary to obtain information about the nature of the disabling conditions, activities of daily living, communication systems utilized, mobility orientation, adaptative devices needed, educational history, vocational experiences, the role of the family, and previous access to social service systems. The following areas are listed as guidelines to assist in the interview process and should be completed in order of priority as determined by the individual client and the vocational evaluator.

Nature of Disabling Conditions

To begin this area of the interview, it is important to assess how the individual reports his/her functional limitations. What does the person consider his/her primary disability? What was the age of onset and etiology of the primary disabling condition? What was the age of onset and etiology of the secondary disabling condition? Any significant information from the prenatal period of life, developmental milestones, and overall health history? What is the degree of hearing impairment (amount of db loss, sensorineural, conductive, or mixed loss)? What is the degree of the visual impairment (light perception, field of vision, depth perception, vision efficiency)? What are the person's tactile discrimination skills? Has the person previously adjusted to one disabling condition and now must learn to cope with a second, or are both new limitations? Does the person report any additional physical limitations (obesity, ulcers, back problems, joint problems, general weakness) or mental/emotional problems (easily bored, restless, problems sleeping, anxious, nervous, depression)?

Activities of Daily Living

During this section of the interview, information is gathered regarding the individual's self care, home maintenance and safety skills. Can the client dress himself/herself? Can he/she wash, mend, and sew his/her own clothes? Is he/she physically able to clean and care for small maintenance problems in the home environment? Is the individual aware of home safety rules? Is the client capable of purchasing and preparing his/her meals? Is he/she familiar with eating in restaurants? Does the client have his/her own saving account, checking account, and/or credit card? Has he/she ever applied for credit? If not, is he/she familiar with the process? What does the person do for recreation? Does he/she have a special hobby, sport or skill? Does he/she belong to any social, civic, religious, or professional organizations?

Communication Systems

Verbal and written communication difficulties can be major obstacles in every day living as well as the vocational evaluation process for persons with combined hearing and vision impairments. What are the client's major communication strengths and limitations? Does the person have the ability to clearly use expressive verbal speech? Does he/she use appropriate voice modulation and projection techniques? What are his/her receptive speech skills? Can he/she use American Sign Language (ASL) or "homemade" sign gestures? Are there ranges for optimal sign reception (near, far, centered, off to one side)? Has the person ever used an interpreter? Was the interpreter a family member, friend or certified professional? Was it a successful experience(s)? How does the person use his/her body language (posture, facial expressions, gestures)? Has the client had any previous formalized language training? If so, for how long and what were the outcomes? How does the individual use written print? Is he/she functionally literate? Can he/she use standard size print? Enlarged print? At what speed and duration of use? Can he/she use Level II braille?

Does he/she use the telephone, TDD, or amplified telephone? For social contact or emergency use only? If the client does not have a phone in his/her home environment, how does the person make an emergency call? How will he/she call in sick to a training program or employer?

Mobility Orientation

The client's report on his/her mobility skills is necessary. How does he/she travel in familiar settings versus new environments? Is the individual capable of self travel? Does he/she require a cane or dog to aid in mobility? Or is a personal companion required for outside of the home environment? Are there special environmental clues that can be utilized during the vocational evaluation to assist the client (such as rubber mats or pieces of carpeting to indicate exit doors)?

Adaptive Devices

During this section of the intake interview it is important not only to assess those adaptive devices that the individual is presently using, but also to find out whether the client has knowledge of other equipment available. Does the client use either light/strobe, loud sound, or vibration, or variable velocity fan alarms for clocks, smoke/fire detectors, doorbell buzzing and/or phone ringing? Does the individual use amplified hearing or vision devices (such as hearing aids, telephone amplifiers, induction loop sound amplifying systems, specialized lens, magnifiers, telescopes, CCTV)? If so, how long has it been and what type of training on the device was provided before use? Does the individual possess enough sound reception to utilize "talking" tools (such as watches, clocks, calculators)? Does the person have sufficient vision to utilize a telecommunication device for the deaf (TDD) with standard size or enlarged print screens? Does the client use brailled tools (such as watches, rulers, food labels)? Can he/she benefit from the use of a writing guide? Is the person familiar with closed captioned television programming? Can he/she utilize a television caption decoder? Does the person have access to a personal computer? Is the individual aware of the modifications that can be utilized with a personal computer? Does the client know about vibrating pager systems?

Educational History

In assessing the individual's educational background several general questions should be asked. How many years of formalized education has the person completed? Did he/she graduate school or complete a certificate program? What type of specialized services, if any, were provided? What were his/her reported successes and failures? What type of extracurricular activities, if any, did the person enjoy while in school? What are the individual's residual functional academic skills (for example: mental math, counting, telling time, measurement, money, recognizing safety signs)? What are his/her goals for future training or continuing education?

Vocational Experience

A full and detailed job history is needed for any client with previous work experience. What were the jobs held pre and post onset of the disabling conditions? What specific job accommodations, modifications, or adaptative devices were utilized? What does the individual report as his/her vocational assets and limitations? What method(s) did the person use to obtain the job? Why was he/she terminated? What level of vocational awareness and amount of career information does the client possess? What is his/her current and future vocational goals? Has the person had any volunteer experiences or avocational activities? Does the person have any experience with self directed job seeking activities? If so, how successful were they?

Role of Family

The impact of family and significant others is also an important component of the person's life to assess during the intake interview. What is the person's current living arrangement? Are there dependents (spouse, children, aged parents) depending on the income of the client? Do any other members of the family have a disability? Where does the individual live (geographic location) in proximity to family, friends, employers, and medical support? What is the present method of financial support? What type of emotional and/or social support from family and significant others, does the client report? Are there any additional cultural, ethnic, or religious variables to be considered?

Previous Access To Social Services

A final area of the intake interview is to assess the individual's previous knowledge and access to social services. Is the person familiar with the concept of informed consent and confidentiality of information? Has the person ever received unemployment, public aid, general assistance, or social security financial benefits? If needed, does the client know the procedure to apply for such benefits? Is he/she familiar with Medicare and/or Medicaid benefits? If the person has dependent children, does he/she know about the Department of Child and Family Services? Is the individual a veteran? If so, does he/she know of

Veteran Administration benefits? Where does the person receive needed medical care? Is he/she familiar with the local medical clinics and hospitals? If needed, can he/she locate necessary outpatient and/or inpatient psychotherapy services? Is the person a registered voter, is over 18 years old? Is he/she aware of the local, state, and federal legal systems? Does the individual know about paying taxes, if applicable? If, necessary, does he/she know how to obtain private insurance? Is he/she aware of educational services that are available to students with disabilities at the local level? Is the person aware of the specialized community services also available (such as Library of Congress books, captioned films or CCTV at local libraries)? Has the person been involved with legislative lobbying for services for persons with disability?

Andrew (1973) found that the initial interview is the hardest part of our task, the part that demands from us the most intensive concentration. An intake interview as suggested in this paper may require additional time initially, but is an efficient use of time when it comes to eliminating unnecessary work sample and psychometric test administration.

INDIVIDUALIZED VOCATIONAL EVALUATION PLAN

Developing an individualized vocational evaluation plan utilizing the information assembled during the referral process and the intake interview is critical. Questions which needed to be answered by the evaluator can be developed based on the information from the intake and focused to be of benefit to the client. Nelipovich and Naegele (1985) suggested that evaluations of specific skills and aptitude areas should be as comprehensive as possible to provide a basis for future planning by focusing on the development of a person's assets.

Worker Characteristics Demonstrated

Sisson, Van Hasselt and Hersen (1987) summarized the current research by reporting that the "most promising approaches to assessment appear to be based on direct observations of behavior." One of the first observations the evaluator can makeduring the intake interview is to observe basic worker characteristics of the client. Did the person possess the ability to recall historical information? Could the client complete a job application? How did the person express himself/herself? Did the individual demonstrate initiative, dependability, and appropriate dress and grooming? Does the vocational evaluator and client both have clear goals for participating in the evaluation?

Couch and Freeman (1976) stated that the unique communication and knowledge requirements associated with deafness require modifications in instrumentation, techniques, methodologies, but the goals and objectives of vocational evaluation remain the same as with other client groups. The goals for the vocational evaluation are: 1) determining the client's potential for rehabilitation, 2) identifying the assets of an individual, 3) identifying the specific problems interfering with the client's rehabilitation, 4) ascertaining a vocational direction, and 5) developing a recommended plan of action. Peterson, Capps and Moore (1984) highlighted five precautions with vocational evaluations of persons with visual impairments: 1) work samples developed for a limited range of jobs, 2) need for more attention to learning styles and needs of this population in work sample development, 3) lack of works samples focused on training program requirements, 4) inadequate analysis of visual job demands and possible job modifications, and 5) need for reliability and validity studies on current work samples.

TEST SELECTION

Upon completion of the IVEP, test instruments, modifications, and adaptative devices should be designated. Careful selection of evaluation tools is necessary. The majority of psychometric tests and work samples are not appropriate to use when only administered in the standardized manner. Botterbush and Michael (1985) summarized this dilemma.

> When the evaluator tests persons different from the group(s) the test was designed for and normed on, the problems in obtaining accurate results increase in both number and complexity. The instructions, item format and content, methods for answering items, and many other specifications make a particular test useful for specific population(s). Changing the population of test users often requires changing the test procedures or locating a test specifically designed for a particular group of disabled persons. Thus, evaluators must be willing to select appropriate tests and/or modify these tests to meet the different needs of various handicapped groups. (p. 16)

The vocational evaluator needs to be adaptable, flexible and creative. When evaluating persons with multiple disabilities the evaluator needs to document performance on standardized tests as well as noting any modifications, adjustments, or adaptive devices utilized during the evaluation. Situational assessment settings may also be required to fully evaluate these persons Careful interpretation of results is also needed. Results of the evaluation should focus on the client's vocational assets and skills in a rather than limitations. Familiarity with mobility and orientation training and basic braille reading are helpful to the vocational evaluator. Fluency in sign language rather than dependency on interpreters is another advantage for the evaluator working with this population.

SUMMARY

There has been an increase of services available to persons with hearing and vision impairments. This is a diverse population of persons with congenital and adventitious disabilities. The evaluation process begins with the initial intake interview. After an extensive interview, the individualized vocational evaluation plan is developed and appropriate evaluation tools, modifications, and adaptative devices are selected. Modifications made in the vocational evaluation process need to be incorporated into the recommendations for future vocational training and job placement. Evaluating persons with dual sensory limitations are a challenge, requiring the evaluator to have an understanding of the unique difficulties in communication, and mobility of this population.

The advent of rehabilitation engineering and technological developments has allowed for individuals with severe disabilities to compete in professional, skilled, and technical occupations. These changes directly effect the need for specialized evaluation services. Research and data collection in this area has been limited. Future studies on methodology, evaluation tool selection, and utilization of adaptive devices are needed. Studies on social validity and job placement implications of changing evaluation formats are also vital. Continued training for rehabilitation staff in meeting the specialized needs of persons with hearing and visual impairments is another area for further development.

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REHABILITATION ASSESSMENT AND TREATMENT OF THE LOW BACK-INJURED PATIENT WITH CHRONIC PAIN

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Abstract

Chronic pain occurs in approximately 8 out of 10 people. Many of those who suffer from chronic pain have that pain localized in the low back. Chronic low back pain (CLBP) is one of the leading causes of lost workdays and it has become excessively expensive to evaluate and treat. Traditional medical approaches do not appear to have attained results needed by the patient. Other so-called complementary health care modalities have been introduced including the pain treatment center (program). Such a program has been initiated at the University of Florida's Health Center Complex within the last 18 months. It is a multidisciplinary approach. Preliminary results indicate some positive trends in outcomes, such as return-to-work.

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Introduction

Chronic pain, especially that chronicity associated with low back pain (LBP), is a phenomenon which has become a major health problem. While not life-threatening, chronic low back pain (CLBP) has a detrimental effect on the quality of life for the individuals themselves, their families, and society in general. As more cases are evaluated and treated, especially through pain programs, the more is learned about CLBP.

Incidence of CLBP has been thoroughly reported by governmental agencies, e.g., National Institute of Health (Nachemson, 1976). Approximately 80% of the population will suffer from CLBP during their lifetime. Not only will this 80% suffer from the condition, but it will be severe enough to impact adversely upon their activities of daily living and/or will require medical attention of some form. Chronic low back pain is said to be a major cause of workdays lost, e.g., 1,400 workdays per 1,000 population in the United States and 2,600 days per 1,000 in Great Britain (Addison, 1985; Belkin, 1982). Next to alcoholism, CLBP ranks as the second most frequent reason for being absent from work. CLBP is certainly a most expensive medical problem (Smith & Crisler, 1985), with estimates reaching as high as ninety billion dollars spent/lost per year (Bonica, 1981; Aronoff & Rutrick, 1983). In the age group 30 to 60, this problem is most costly, both in terms of dollars spent to alleviate the pain and in amounts lost in workdays, contracts and so on. Two hundred thousand surgeries are performed annually for treatment of CLBP, along with more than nineteen million doctor visits (Brody, 1982).

Review of Literature

Medical science presents acute pain and chronic pain. A distinction must be made between the two. The former has been variously described as time-limited or recent-onset pain (Fordyce, 1981). Acute pain is generally an indicator to notify the patient of a particular problem which requires treatment. Chronic pain, on the other hand, has the property of being enduring in character, i.e., six months or more. Present in chronic pain are factors forming a complex interaction emanating from the physical realm (biological and physiological), environmental (socioeconomic) conditions, and psychological (learned goal-directed behavior and/or conditioning) components. The definitions of chronic pain and by inference, CLBP, imply that the patient will need more than the usual treatment afforded by the medical model. The traditional medical model dictates that treatment of the patient be focused discovering and alleviating the source of the nociceptive stimulation (Aronoff, 1981). The whole life (social, psychological, vocational) of the patient is gener-

ally not considered, not out of lack of concern, but due to the nature of the situation. A patient with CLBP who enlists the help of professionals is in need of more than medical treatment.

The following characteristics are often observed in patients with CLBP: a preoccupation with pain, blaming others for one's own difficulty, suspicion and anger towards others, strong and ambivalent dependency needs, passivity (inward turning), use of pain as a symbolic means of communication, depression, lack of insight, masochism, denial of situational reality, anxiety, bitterness against others who enjoy pain-free life, feelings of isolation and loneliness, inability to deal with repressed anger and hostility appropriately, poor judgment, attempts to control and manipulate others, hopelessness, anxiety, lack of critical decision-making, inability to cope with stress, inability to meet the activities of daily living, low frustration/tolerance levels, denial of situational reality, sense of indignation and injustice, and compensation neurosis. And the list does go on. (Beck, 1985; Aronoff & Evans, 1985; Hollingsworth & Watson, 1980; Sternbach et al, 1973).

Traditional medical management of CLBP included bedrest, surgery, nerve blocks, TENS, medications of varying potency, and physical therapy. These are the modalities most often mentioned by the patients. Due to the nature of CLBP, these interventive modalities have brought about varying levels of success.

Non-medical healing modalities have also been attempted when the individual patient believed traditional approaches proved unsuccessful. Kotarba (1983) indicates these non-medical health care services can be best conceived of as complementary health care modalities (CHCM). The use of one or more of these services is situational in that the patients who use them still very much believe in the efficacy of conventional medicine, but are pursuing other resolutions to attain specified goals.

One CHCM, chiropractic encounter, has the greatest following of all non-medical health care services (Kotarba, 1983). Another CHCM, which Kotarba (1983) designates as the applied mysticism approach, includes meditation (TM, yoga), biofeedback, self-actualization, acupuncture, and hypnosis. Still another CHCM is the chronic pain center. This is the focus of our discussion.

No one of the above modalities, whether conventional/traditional or the CHCM may be the best approach to CLBP. There is no consensus among the various professional groups as to which strategies are most effective in treating CLBP so the patient can reclaim an appropriate lifestyle, including return to competitive employment. The chronic pain center appears to have subsumed many aspects of the various modalities already mentioned. It could be considered a plausible avenue for the CLBP patient.

The General Pain Program

In 1961, Dr. John Bonica, an anesthesiologist, conceived and developed the first multidisciplinary pain treatment center in the state of Washington. Today, there are more than 800 chronic pain centers in the United States, some of which are uni-disciplinary, rather than multidisciplinary. The emphasis in this article will be on the latter (Hendler & Fenton, 1986).

The members of the multidisciplinary team in a pain treatment center could include a neurologist, a neurosurgeon, an orthopedic surgeon, a psychiatrist, a dentist, a radiologist, an opthamologist, an otolaryngologist, a pharmacologist, a social worker, a psychiatric nurse, a psychologist, a physical therapist, an internist, an occupational therapist, a vocational evaluator, a vocational rehabilitation counselor and/or a rehabilitation specialist, and a nutritionist/dietitian technician. This list is certainly not inclusive. The patient should always be considered part of the team. The individual patient's needs will dictate additional consultants being added to the above list. Family members would be an important team member due to the critical knowledge they possess of the patient and the post-pain-treatment care which they will provide for the patient.

In general, the mission statement of a pain treatment center might be to assist individuals in returning to a productive, functional lifestyle through treatment and management of pain. A goal of a pain center would be to aid patients to apply values and techniques learned during their stay to activities of daily living after discharge. Treatment modalities in a pain center might include surgery, group and/or individual therapy (stress management, relaxation, behavior modification), nerve blocks, TENS, evaluation of home situation, physical capacity evaluation and physical therapy, work tolerance screening and work hardening/situational assessment, vocational evaluation, vocational rehabilitation (job readiness curriculum), recreational therapy, medication, and dietary regimen.

The team members assemble on a scheduled basis, e.g., twice weekly, to discuss individual patient's progress. Deletion of, or addition to, the treatment plan would be made at this time. The team increases its effectiveness when crossover of ideas between disciplines is viewed as helpful to the patient. This cross fertilization of ideas and knowledge can be quite beneficial to all involved (Newman & Seres, 1986).

Aronoff, Evans and Enders (1983) completed a study of twenty multi-disciplinary pain-units. Their research showed a wide range of activities with little allowable comparisons due to multiple factors. In order to make comparisons, certain standardizations have to be met. Some advance in this direction has been realized recently. The Commission on Accreditation of Rehabilitation Facilities (CARF) has started the accrediting process for chronic pain management programs, with fifty being accredited by mid-1986 (Rothberg, Simons & Spencer, 1987). Other deficiencies noted by Aronoff et al. (1983) included length of follow-up, using memory of events rather than actual time measurement, lack of face-to-face assessment in lieu of questionnaires.

Spinal Treatment and Rehabilitation Program

Due to the epidemic proportion of CLBP indi-

viduals who constantly seek respite from this aggravating and frustrating problem, professionals in the teaching clinics at the University of Florida's teaching hospital attempted several times to establish a pain management program.

Their combined efforts culminated with a series of meetings in October, 1987. The scheme of this attempt was to focus on low back pain rather than chronic pain in general. It would be concerned chiefly with the musculoskeletal rehabilitation of the spine. The program would be limited to individuals who were receiving workers' compensation. Thus, the Spinal Treatment and Rehabilitation (STAR) program had its start.

The program would involve both extensive evaluation followed up by a six-week program of treatment. The multidisciplinary team approach was established. Members of the team included a psychologist, an occupational therapist, a vocational rehabilitation counselor/evaluator, a physical therapist, an orthopaedist, a pharmacist, and a nutritionist. Other disciplines such as psychiatry, communicative disorders, internal medicine and dentistry, are consulted when the occasion demands.

Initially, the patients were evaluated over a period of three days to one week in the various disciplines. Recommendations are made by the team to the insurance carriers regarding the suitability of the patient for the treatment phase of STAR. Often, the time lag between evaluation, team approval, insurance approval and start of program extended to a half-year. This lengthy wait was deemed impractical and potentially disruptive to the patient. Currently, evaluations take place at the outset of the STAR program. Patients are initially screened as to potential and ultimately accepted after evaluations and team decision.

The STAR program extends for a period of six weeks. Emphasis appears to be placed upon physical reconditioning, since the mornings of each treatment day are devoted to this. The MedX machine and other Nautilus equipment are used for the demonstration and practical parts. The patients are given much information regarding education on the back, i.e., how it works and body mechanics. Lifting techniques are stressed, in addition to endurance (by walking programs), flexibility (by stretching exercises) and by strengthening (through the Nautilus equipment). Afternoons are divided among psychology (pain management, stress management, biofeedback, relaxation techniques), occupational therapy (work hardening) and vocational rehabilitation.

The cost of the STAR program is consistent with other pain centers, and somewhat in line with alcohol and drug rehabilitation centers. The extensive evaluation cost is currently $2,000 with the treatment phase at $10,000.

A STAR team meeting is held twice a week to discuss each patient in turn. The clinical psychologist leads the treatment phase. Problems are discussed and each member of the team offers suggestions or insights.

The initial evaluation of a patient for the STAR program was in December 1987, with the first group beginning in March 1988. To date, six groups with two to eight participants have participated in the program. A total of 44 patients have completed the evaluation process. Of these, 25 (56.8%) have continued on in treatment. Of these 25, 19 have completed the program. While the total number of the patients involved in the STAR program does not lend itself to comparisons, certain demographic data is given for consideration.

STAR Demographics The overall profile of a STAR patient would suggest almost a middle-aged (38.8 years) male, who is Caucasian, with a lower middle class income. The typical evaluee would have experienced approximately 2-1/2 years of chronic pain, would likely be married, and would have completed the tenth grade. This evaluee would not have been employed at the time of evaluation. More than likely, an attorney would have been retained.

Lifting appeared to be the major cause of the CLBP, with surgery to relieve the symptoms being a very real possibility. Drugs for pain would in all likelihood be part of the daily regimen.

Since the program is recent in start-up, follow-up, which is an integral part of the entire process, has just begun. Follow-up is offered at three levels: (a) Individual appointments (psychological, vocational, etc.) are available with team members as needed and practical; (b) the physical therapy staff offers supervision and access to the equipment post-program, or a prescription to a similar facility is written; and, (c) invitations for face-to-face follow-up with the team is planned every six months. The first of these follow-up clinics was conducted in February 1989, less than one year after the first treatment group started.

Follow-up is considered a critical element in any program. In the STAR program, follow-up is just beginning. It is scheduled as an integral portion of the STAR program.

The meager follow-up data obtained to date does not allow for specific comparisons with other pain centers. Many of the participants in the February 1989 follow-up had only completed the program less than five months ago. The fact that 38 percent of the STAR completors have attained some employment or training is most reassuring, and is a motivator for continuing.

Vocational Evaluation

The vocational rehabilitation evaluation component of STAR is somewhat unique since many of the multidisciplinary teams did not include this component. It is true that many of the programs contained the occupational therapy element. Emphasis, however, on the mechanics of the vocational assessment process, career exploration, and assisting the client in seeking competitive employment are seriously lacking.

This component in the STAR program begins in the evaluative phase. A diagnostic initial interview obtains pertinent medical, social, educational and work history, as they will impact upon future employment considerations.

The evaluation plan includes: interests, aptitudes, achievement, (work) values, personality (temperaments) and intellectual functioning. The

choice of instruments administered depends on the individual client. The Apticom, S.A.G.E., VALPAR, T.A.P. systems are all available. Dexterity tests, such as the Bennett Hand Tool, Crawford Small Parts, Purdue Pegboard, and so on, can be accessed. Paper/pencil tests available include Career Occupational Preference System, Strong Inventories, Self-Directed Search, Career Decision Making System, Career Assessment Inventory, WRICT, Reading-Free Interest Inventory, WRAT-R, C-CAT, Test of Adult Basic Education, Revised Beta II, and the TONI.

The client has access to the CHOICES System and the Florida VIEW System, both of which are computerized career exploration programs. Each uses various worker traits and other data to help the client decide what to select as options for future competitive employment. Also available for assistance is the Occupational Access System (OASYS). This last system is used in developing the residual functional capacity, i.e., transferability to current level of functioning.

A rehabilitation assessment report is completed following a format which includes the usual information on the client with results of the testing and observations. Transferability of skills is addressed, along with specific recommendations regarding anything which might impact adversely upon the client's future job placement.

The treatment phase is conducted generally in a group setting, although individual work is scheduled. Primary targets for this phase are career exploration and job seeking skills. In the former, activities such as reviewing interest surveys, accessing the Occupational Outlook Hand Book, Guide for Occupational Exploration, computerized career search, and open discussions are all used, but by no means limited to these. The job seeking skills phase instructs the individual on how to fill out an application, obtaining an interview and practicing interviewing. Videotaping and role-playing are key factors in the interviewing process.

Information on Florida's Worker's Compensation (WC) laws and procedures is also given prominence. The local WC Bureau rehabilitation nurse is invited to speak to the group and answer questions. Coordination with each client's rehabilitation specialist is emphasized, along with visits and review of the client's progress. The client is urged to contact any of these professionals if there are questions or problems.

Conclusion

The chronic low back pain patient is seemingly everywhere. Traditional, conventional modalities have met with mixed success when treating the CLBP patient. Complementary Health Care Modalities, especially the pain clinic, are also meeting with mixed success. The pain clinic, however, seems to be working out better overall for the CLBP patient. The reason for this could be the multidisciplinary approach which is common to most pain clinics (McArthur, Cohen, Gottlieb, Naliboffi, Schandler, 1987). It is this approach which the STAR program has fostered.

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SITUATIONAL ASSESSMENT IN AN INTEGRATED SETTING FOR SURVIVORS OF TRAUMATIC BRAIN INJURY

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CHARLOTTE REHABILITATION HOSPITAL

Abstract

Situational Assessment in an integrated hospital or community setting provides valuable work opportunities and feedback about work readiness skills in the vocational evaluation of survivors of Traumatic Brain Injury (TBI). Assessment opportunities were developed and utilized during the screening phase of referrals for a job coach Supported Employment Program. Charlotte Rehabilitation Hospital in Charlotte, N.C. received an OSERS Part C grant from the N.C. Division of Vocational Rehabilitation in April, 1988 to establish and demonstrate the effectiveness of this model of Supported Employment with TBI survivors. A full-time Community Re-Entry Specialist and half-time Job Coach were hired for one year with a goal of placing eight to twelve individuals in a competitive job at least 20 hours per week in an integrated setting with support. However, traditional vocational evaluation in a clinical setting and review of other psychological or neuropsychological evaluations and knowledge of transferable skills or previous work experience did not give adequate information to determine which of the more than sixty referrals received were most work ready or adjusted to their disability. Lack of insight into deficit areas and memories of pre-injury vocational or educational status interfered in that adjustment. The intended outcomes of utilizing the situational assessment are to increase self-awareness for the individual of strengths and limitations and to assist in developing realistic and appropriate goals with a plan of action and periodic re-evaluation to modify goals. The existing structure for other hospital volunteers was utilized and all referrals who did not have an appropriate job or specific goal were offered work opportunities. Negotiation between some referrals and their previous work site and the Supported Employment Project staff developed situational assessment work opportunities at former job sites with job coach support. When situational assessment placements have not been good job matches, the individuals have the benefit of supported failure and feedback to set more realistic goals and minimize damage to self-esteem, work record and work reputation. Project staff have been a resource to on-site supervisors or co-workers after the job match to provide education, teach compensatory strategies, collect performance data and provide feedback compared to non-handicapped workers in an integrated work setting.

The increased stress and psychological adjustment which follow any traumatic event are compounded by deficits in physical, cognitive, behavior or psycho-social areas, changes in personality and family roles and altered status or vocational or educational potential when the traumatic event is a brain injury. The life problems that emerge following TBI persist for months and years beyond the acute phase of medical care. Recovery may span a decade from date of injury and still the person may not be exactly the same as before the brain injury. Psychological issues may never be fully resolved.

The individual with TBI may feel like a different person. Suddenly there are memory problems, fatique, slow mental processing, loss of coordination for some tasks and increased frustration. There is loss of independence and loss of control and perhaps a need for continued therapy, re-training, counseling and evaluation for months and years. Eventual outcome is difficult to predict. Situational Assessment can offer work opportunities and valuable feedback on performance, work habits, social skills, behavior and initiative, in the evaluation process.

Traumatic Brain Injury

Whether a TBI is classified as mild, moderate or severe, persistent deficits may continue to interfere with everyday life. Impaired executive functioning may affect:

- Self-awareness of strengths and limitations
- Appropriate or realistic goal setting
- Planning and Organizing
- Self initiating or self inhibiting
- Self monitoring
- Self evaluation

"Traumatic brain injury is in some ways a diffuse injury, and leads to the disruption of multiple aspects of the cognitive systems, including attention, language, higher cortical functions, social behavior and personality and, of course, memory, to mention a few." (Trexler and Zappala, 1988). Cognitive, behavioral, emotional and physical consequences create problems in returning to productive roles in the community, whether as student, trainee, volunteer, homemaker, or paid employee, with lifetime support needs, and continuing adjustment issues during recovery.

Recovery usually involves a continuum of services after initial onset of TBI, depending on the severity and availability of appropriate services, and may include Trauma care, Acute care, Coma care, Acute Rehabilitation, Long Term Rehabilitation, Regular Out Patient or Out Patient Day Treatment or Community Re-entry Services. There is no typical or normal brain injury so each TBI must be individually evaluated, treated and encouraged to become involved in their recovery.

Why Situational Assessment?

In the screening process for establishing need for Supported Employment job coach and long term support, test results and previous work skills and academic abilities do not give the whole picture. The vocational evaluation process can utilize situational assessment to assess motivation, initiative, dependability, ability to structure time, accept supervision, or learn new information. Work behaviors can be assessed in a real work setting, using work trials.(Ben-Yishay et al., 1987)

Situational Assessment can provide work opportunities even before the individual is medically released to return to a previous job and can help set realistic goals. Sometimes it is preferable to have the situational assessment away from the previous work site. In the case of K.C., a 29 yr. old female with a training position as financial consultant/stock broker, a setting away from her firm was acceptable to her. She did not want to be seen by co-workers doing filing and other diminished aspects of her job because she feared it would affect her status in the office hierarchy. A situational assessment in the hospital allowed her to gain feedback and improve on skills necessary for success when she returned to work. K.C. had suffered a hearing loss and slower auditory comprehension with her brain injury from a car accident approximately two years ago. Her volunteer job was to call past volunteers to thank them for their help and ask if they want to continue to volunteer. This helped practice the calls she would eventually make to offer her services as broker or explain a certain stock package. Opportunities to give oral presentations on financial planning were arranged with feedback. As she progressed, she assisted in a political campaign as a volunteer to improve her ability to use the telephone as a sales tool. She maintained a schedule which included exercise in the Health Fitness Program at the rehabilitation hospital and situational assessment in several hospital departments such as out-patient Physical Therapy, Vocational Services and working for the Volunteer Director. K.C. took one or two courses at local colleges each quarter in the last six months before resuming her old trainee position, full-time, with job coach services. She had received full vocational, psychological and neuro-psychological and auditory evaluations as well as Physical and Occupational Therapy and continued Speech Therapy. Work adjustment and psychological support were offered through group and individual sessions dealing with managing stress, re-gaining self-confidence and assertiveness and resuming driving an automobile. Information from her situational assessment made the transition to work easier.

Sometimes a person can return to work too soon and lose a job or position because they are not ready to handle the duties or responsibilities. Take the case of T.B., a 38 yr. old male with 18 years experience in auto body repair and estimating. He had a motor vehicle accident in May of 1987 and returned to his former job against the advice of his out-patient Occupational Therapist and Vocational Evaluator in Sept. of the same year, just four months after his injury. He had a vocational evaluation and prevocational group evaluation and was referred to Vocational Rehabilitation. He reported no problems to his doctor and was released for full-time work in November of 1987 and soon was terminated from his job by his employer. No job coach services were available at that time and he did not participate in situational assessment to evaluate work related skills. T.B. had lost vision in his right eye and enjoyed limited use of his left hand and shoulder. His employer stated the following reasons for letting T.B. go after 18 years: poor reasoning skills (he went into the boss', wife's office and sat down and told her all about how he used to do cocaine), poor concentration (he did not stay on any task for very long), poor initiation and follow through, taking two hour lunches (T.B. said it took him longer to eat now), not following policy (not signing out when leave for doctor's appointment), not follow employer instructions (refused to put green sticker on to show he had inspected vehicle) and generally not being productive for the company. In completing an estimate, he may be accurate on all except that he would not include a broken mirror or other detail by oversight or lack of attention to detail. Later a community college class was recommended on Estimating Auto Damage and T.B. agreed to resume therapy and psychological counseling. Agitation, violence and low frustration tolerance were common which resulted in marital discord. T.B. lost a good job due to lack of insight of problem areas.

A person may not be ready to return to work responsibilities of a substantial, gainful nature because of many reasons. Each individual passes through stages in the recovery and improvement is expected to continue for years.

Unpredictable Performance

Emotional mood swings and loss of control can contribute to unpredictable performance. Loss of initiative and lack of insight and awareness of deficits can prevent a person from benefiting from feedback. Memory deficits create problems for the person to remember what is expected or how he did the task yesterday. Medication side effects can affect performance and work speed. A person recovering after a brain injury may make progress in stages and have plateaus in progress during which relatively little progress is made or even function may be lost. Structure, repetition and consistency are important elements to achieve more stable performance. Behavior management programs and drug/alcohol education programs may be needed.

Psychological Adjustment Issues

Activities which were once satisfying because they matched previous abilities or were natural or automatic may not be satisfying if they are now difficult and frustrating to perform. There are almost always changes in personality. Fraser et al, (1988) state, "head injured persons who continue to experience memory deficits, problem-solving difficulties, mental inflexibility, and lack of insight into their limitations may lose

several jobs without clearly knowing the reasons." Loss of confidence and self-esteem result from pursuing unrealistic goals. Individuals must learn to manage increased stress and deal with dependency issues. Situational assessment can offer opportunities for success if a job is matched to current ability and cognition level. The person is aware that responsibilities will be increased as function improves. After TBI, a person needs to be vigorously challenged and stimulated to improve functional skills. (Chance, 1986)

"The demands of a competitive job are significantly greater than those found in most rehabilitation facilities and are almost a quantum leap for many head-injured clients. However, many head-injured clients can make the transition if it occurs slowly. For example, placing a head-injured client in a volunteer position on a part-time basis, gradually transferring the client to a part-time job and untimately a full-time job, all under the direction of a community reentry specialist, is one method that could be used." (Fawber & Wachter, 1987). It is a big step from a rehabilitation facility to community re-entry to home or work. Lyons and Morse recommend a "gradual, progressive transition from a medical setting to work placement and community reentry." (1988). Work trials within the hospital and supervised placements in the community were included in their Therapeutic Work Program for Head-Injured Adults. Gradually adding developmentally appropriate tasks and expectations and providing feedback to be used to modify goals help give a sense of control to the survivor of TBI. The individual needs choices and involvement in planning process.

Group support meetings were held to provide education and allow exploration of negative psychological reactions to disability. Members of the group were able to learn from each other and use the impact their behavior has on others. The group meetings were held one evening per week for three hours for ten sessions. Twelve individuals at a time were invited to participate to share observations on their situational assessment or supported work placement. Monthly follow-up support meetings provide long term psychological support to the individuals who will be dealing with adjusting to their traumatic brain injury and resulting deficits for many years.

Stamina and Endurance and Work Speed

Often after TBI, physical and mental speed is decreased by slower processing and reaction time. It takes more effort to accomplish less. A slower work speed is common which could affect production standards, reading or study time, task completion and frustration tolerance. It is not a good idea to return to work or school before work speed and endurance meet at least entry-level expectations or minimal demands of work setting.

Need for Continued Therapy/ Education /Recreation

Since the healing or recovery process can continue for years, individual or group therapy may be beneficial. Situational Assessment can be scheduled along with out-patient therapy, classes or leisure activities as part of the evaluation and rehabilitation process. Education and training classes can be used to gain feedback on ability for new learning, to review previously learned material where memory problems exist and to increase skills or coordination in a certain area. Recreational activities can be therapeutic and provide opportunities for socialization.

One referral to the Supported Employment Project participated in a combination of therapy and situational assessment. L.B. is a 17 yr. old female with a TBI received in a car accident seven years earlier when a drunk driver struck her car which resulted in the death of L.B.'s mother. She was raised by her father who noted changes in her academic performance, personality, judgement and physical appearance since the accident. No services were available at the time of the accident. Public school could no longer meet her needs due to learning disabilities in reasoning and attention deficits, social disinhibition and lack of insight. She was between her junior and senior years of school at a special high-priced private academy for learning disabled children. Insurance coverage assigned her problems to psychological rather than neurological origin and refused to cover most services which were now available. For six weeks during the summer, L.B. participated in a daily schedule of situational assessment and individual and group therapy as follows:

8:30- 9:00	Check in OT-set daily goals/review personal grooming and preparation
9:00- 9:30	Individual Psychology (therapy)
9:30-10:30	Exercise-Health Fitness Program
10:30-11:30	Situational Assessment Voc. Services clerical aide
11:30-12:00	Lunch (with Voc. Services staff in cafeteria)
12:00- 1:00	Situational Assessment Cafeteria aide
1:00-2:00	Situational Assessment Transportation Aide
2:00-3:00	Adjustment to Disability Group therapy
3:00-4:00	Situational Assessment Cafeteria Aide
4:00-4:30	Vocational Services (evaluation)
4:30-5:30	Social Skills II (2 days per week) Independent Living Skills (3 days) (group therapy included outings in the community to practice skills)

L.B. continued the Situational Assessment in the afternoon when school resumed in the fall. Self-monitoring check-lists were developed to deal with grooming and hygiene problems. Close supervision needs emerged as L.B. inappropriately saw every male as cute and interested in her. She talked to a patient in the hospital with a brain injury who was more than 20 years older than her during her lunch periods sometimes but reported to her school teachers that she was going to marry him.. Feedback on the impact of social interactions were provided to reduce impulsive actions and regulate verbal output and excessive talking. Eventually a supported employment placement was made as cashier at a large toy store with job coach services. Information gained from the situational assessment helped in this placement.

Each individual will have special needs and situational assessment and vocational evaluation need to be flexible. Another referral for Supported Employment Services is S.M., a 27 yr. old male receiving Workman's Compensation for a work-related injury. The job he wants to return to is sales representative for a major supplier of sophisticated office equipment. Some problem areas still limiting him included fatigue, reduced reasoning, slower mental processing time, lack of self-confidence and problem solving ability, reduced assertiveness, and lowered frustration tolerance. His company is a growing and aggressive company and would like S.M. to be back at 100% before resuming his full duties. His supervisor is willing for S.M. to have a scheduled situational assessment for eight hours per week at his previous work site with support from Project job coach. He participates in training opportunities to review sales presentations, accompanies other sales representatives on calls, and on-the-job training in assertiveness and sales techniques from his supervisor. Recommendations were made to move his desk to a less distracting area and increase his organization of his desk supplies. When he returns to work, he may have his territory changed from a residential territory where he was on his own with a lot of independence and not much structure to a territory closer to the central office with more opportunity for supervision and structure. He may start out on a salary to take the stress and pressure off of commission sales. His situational assessment at the job site is combined with a schedule of therapy (Vocational Evaluation, cognitive re-training, Problem-Solving group, individual Occupational Therapy) Exercise in the Health Fitness Program and Situation Assessment in the hospital in two areas (clerical support for Nurse's station and supervising others in cognitive retraining) and he is taking a Public Speaking college class.

Why Use an Integrated Setting?

Many of the referrals to our Supported Employment Project were being served or were being considered for work adjustment or for situational assessment in local sheltered workshops which were currently serving primarily other developmentally disabled populations. The status of disability after TBI is not stable. Brain function and efficiency are expected to improve. Individuals need to be challenged and stimulated and placed in environments with other workers where there are opportunities for socialization and ability to learn from others. A person may rise to the occasion to meet social expectations or work demands. Feedback on work performance needs to be based on comparison with non-disabled workers who are meeting company or agency standards. Feedback will not be accepted if compared to lower group.

In an integrated work setting, there is real work and potential for being hired if a job becomes available. Supervisor feedback and reference letters have more validity from integrated work settings. A person may not be motivated due to depression or low stimulus in an environment with other developmentally disabled workers who have less chance of improving and more time to adjust to their disability status.

TBI is Unique from other Development Disabilities

Recovery and improvement is expected to continue and adjustment issues are different for each individual. Jobs or placements which meet ability levels at one point in the recovery may be out-grown as the person improves functioning level and cognitive abilities. A new placement or job modification to add more challenging duties will be needed. Rather than seeking all entry level jobs, individuals may have had work experience in a wide variety of skilled and highly technical or professional jobs. Previous work may or may not be an advantage. (Kreutzer et al ,1988)

Referrals to our Supported Employment Project had been out of the competitive work force from eight months to eight years and some had no previous work experience. Those who had worked still had vocational goals to return to career fields such as: auto mechanic and body repair, computer programmer, attorney, president of own company, pharmacist, sales representative, brick layer, bank teller, financial consultant/stock broker, school teacher, credit manager, textile worker, machine operator, car salesperson, office equipment mechanic or plumber. Adjustment is difficult when a lower skilled job is necessary.

After an injury to the brain, a person may remember premorbid status and maintain goals based on pre-injury ability. Pre-injury abilities and experiences are important, however time must be allowed for each person to become acquainted with how their abilities or work speed or thinking have been affected. It is important to provide each individual with an opportunity to be compared or obtain feedback from others similar to his pre-injury peers or co-workers. Since lack of insight and self-awareness and denial of problems are so common after TBI, a situational assessment with another population or disability group more mentally handicapped or physically handicapped than the individual being evaluated perceives himself to be...may be interpreted as having no value or relevance to the individual. The feedback must be based on meaningful experience.

A TBI is often not obvious, it is a hidden disability in many cases. The person looks the same. Often it is difficult to ask for help or realize that help is needed. The person may be trying hard to adapt and be "their old self" and some can bluff and put up a good front. Job coach services and teaching interventions must be fit creatively into the work environment without casting doubt on the worker's competence. The job coach is a facilitator. (Nisbet & Hagner, 1988)

Individuals may not need as much help learning job duties as they will in learning to control some behaviors, getting along with co-workers, supervisors and rules and regulations. Psycho-social adjustment and relationships could be problem areas. Jobs that meet ability at one stage may be out grown. Often a person must work at a lesser or diminished capacity or is not able to utilize previous education or training after TBI.

Utilizing Existing Volunteer Structure

When the Vocational Services Department recognized the need for situational assessment in the vocational evaluation process, work opportunities within the rehabilitation hospital were explored. Consultation with the hospital Administrator and Volunteer Director reached an agreement to use the existing volunteer system to orient and place our TBI survivors in real work settings. Department Heads were contacted to identify work settings and supervisors.

The Supported Employment Project staff were established as referral and resource and support for the situational assessment placements. Information from pertinent evaluations relating to vocational potential are shared with the Volunteer Director to obtain a good job match. Before beginning a situational assessment, each volunteer worker receives an interview, fills out an application, has a tour of the hospital and sees an orientation video and has a picture identification badge made which all hospital employees wear for security reasons. An individual schedule is developed and mutually agreed upon between the Volunteer Director, Project staff, work supervisor and most important, the individual being evaluated. Family members are included in the planning process.

Volunteer workers are entitled to a meal ticket worth $2.00 toward purchase of a meal if they work as much as 4 hours in a day. There is a Health Fitness Program of exercise equipment, aerobic exercise and education which TBI survivors in situational assessment at the hospital are encouraged to use at no charge. Volunteers sign in and record their hours and receive recognition for their service to others.

Creating Situational Assessments for Individuals

In the beginning, Department Heads had a hard time finding work which they felt could be done in a situational assessment. However, once a few successful placements were made and word spread around, other work opportunities were created. The on-site supervisors and co-workers began to realize the value and benefit of utilizing these workers. Placements were created in departments that had never utilized volunteer help. J.G. was a pharmacist for a large drugstore chain before her TBI, and her long-range goal is to return to this career. A placement in the hospital pharmacy was developed and scheduled in between her out-patient therapy. Tasks within her ability were identified.

R.W.is a 19 yr. old male who had no paid work experience since his TBI from a car wreck when he was 14 years old. He completed a high school program with a homebound teacher. He was then placed in a local sheltered workshop serving primarily mentally retarded adults. R.W. did not like this environment and problems were reported with his ability to accept constructive feedback, impulsivity, low frustration tolerance, memory, social skills and following rules. He was referred for supported employment services with a vocational goal of maintainance helper in an apartment complex or cafeteria worker. R. W. and his mother were interviewed and vocational evaluation was continued through the hospital Vocational Services Department. A situational assessment was offered to R.W. and he accepted and promised to do his best. He wasn't thrilled with all aspects of the situation. He told one potential supervisor during an interview, "Don't worry, lady, if you don't want me. I'm not that thrilled about the work anyway." He wasn't thrilled about not being able to wear blue jeans to work or having to remove his baseball cap when inside the hospital. However he agreed to follow hospital policy and expressed a strong desire to obtain a real job which could help him move toward independent living. He knew this assessment could give him an opportunity to prove himself and get work experience and possibly a reference. R.W. could not meet all requirements for any available job within the Housekeeping Dept. or Cafeteria, but could perform certain tasks and duties with adequate supervision and prompting. A modified job description was developed for his situational assessment which took tasks from two departments which allowed paid staff to spend more time on other duties. In the Housekeeping Department, he took on the responsibility for some grounds maintainance (picking up litter) which allowed him to work outside, which he liked. In addition, he washed wheelchairs, trashcans, windows and he kept one area swept and mopped each day. At other times, he assisted in stocking linen and supply closets toward the goal of taking on this duty at a later time. In the Cafeteria, R.W. cleaned tables, stocked condiments, swept and generally kept the area clean during his shift. His schedule included:

9:00 Sign in-Volunteer Office
Pick up meal ticket
Report to job coach-Vocational Services
9:00-10:00Housekeeping Dept.
10:00-10:15 Break with other Housekeeping workers
10:15-11:00 Cafeteria work
11:00-12:00 Housekeeping Dept.
12:00-12:30 Lunch (on his own in Cafeteria)
12:30-1:30 Cafeteria work
1:30-2:30 Exercise in Health Fitness Program

Occasionally his schedule would be changed to look at R.W.'s ability to be flexible in work duties and he could be loaned to another department to work on a special project, with supervision. There is a possibility that a paid position may be able to be justified for R.W. in the Housekeeping Department and if he is able to learn to function in a normal work setting, he will be able to obtain a reference and recommendation for a competitive job in the community.He will be able to utilize a job coach for support who has already identified compensatory strategies that helped make the situational assessment successful. Since there was no previous work experience, the situational assessment gives him an opportunity to find out through experience which job tasks are most satisfying to him.

Performance Evaluations and Feedback

Each participant in situational assessment is provided with job coach support services. The

job coach provides daily and weekly verbal feedback to the person being evaluated. A check list is utilized for on-site supervisors to rate the person's performance in the following areas: attendance, punctuality, flexibility, ability to work independently, accept supervision and follow policy and procedure, grooming and hygiene and getting along with co-workers. Stamina and endurance are evaluated with work speed and accuracy. Problem areas are identified and goals are set to learn compensatory strategy, modify behavior or improve performance. Written performance feedback is available to the person from on-site supervisors and progress notes are maintained in case records by the job coach. Individual counseling is available as needed.

Feedback is vital to be able to impact on the lack of insight or denial of limitations. If the person does not perceive the situational assessment as real or productive work, then the feedback will have no value. On the other side of the coin, if the person performs the work and does not receive adequate feedback in a form that can be understood and incorporated into realistic plans and goals, then the situational assessment may have no value other than keeping the person busy and getting some work done. The feedback will be more effective if understood.

The goal of situational assessment is to increase self-awareness of strengths and limitations. Often the individual after TBI will be unable to evaluate their performance or monitor progress. Job coaching with this population involves teaching the individual to monitor their own performance and identify problem areas and compensatory strategies to aid in self-evaluation toward the goal of independence. Time management logs, behavior or activity check-lists, daily planners, computers with memory for scheduling and financial management, and other aides such as a watch with alarms set to remind the person to take medication or a computer spell-check program can make a person more independent.

Developing Job Descriptions

Job descriptions were written for each placement in situational assessment so duties and qualifications needed for success were clearly stated. The following job description examples were developed by C.Z. during her own situational assessment. C.Z. received a TBI classified as mild at the time (three years ago) and was released with no therapy. She had passed the bar exam three months before her injury and had been working in a law firm as a courtroom attorney. Persistent cognitive problems, physical symptoms and medication side effects have combined to prevent her from being successful in her attempt to return to work either to her previous job (they sent her a registered letter to fire her from the firm) or another part-time job in a different firm. Vocational Rehabilitation referred her for supported employment services and she was involved in vocational evaluation, work adjustment (psychological) and situational assessment. She was given a format for the job descriptions to follow. C.Z. then interviewed supervisors and workers in specified situational assessment placements and combined their information on her personal computer at home and brought it in for review by the Volunteer Director and Vocational Services Director, before final printing. The hospital attorneys have been asked to create a 'para-legal' assignment for further situational assessment of this individual.

Job Descriptions: Examples

The format for each job description included job title, person responsible to, purpose, duties, time required, in-service training requirement, qualifications and a date to show when the job description was developed. These examples reflect only part of the full job descriptions.

Job Title: Pharmacy Volunteer
Purpose: To assist the Pharmacy Department to enhance efficiency and improve productivity clerically
Duties:
1. Assist with passing out medication
2. Make deliveries as necessary
3. Check for out dated drugs
4. Type labels

Qualifications:
1. Light typing skills
2. Physically mobile
3. Cooperative, reliable, dependable
4. Accuracy, good attention to detail

Job Title: Clerical Assistant/Urology Department
Purpose: To provide clerical support for Urology Dept.
Duties:
1. To type envelopes, forms and labels
2. Alphabetically filing patient record
3. Answer phone and take messages
4. Make copies, deliver mail

Qualifications:
1. Accuracy and attention to detail
2. Good communication skills and verbal ability for telephone answer
3. Cooperation and flexibility
4. Ability to work quietly in an area of work which is crowded with four nurses doing telephone and documentation at their desks.

Supported Employment

Our experience supports the one-on-one job coach model of supported employment services as the model most able to meet individual needs. The definition of supported employment involves at least 20 hours per week competitive employment in an integrated work setting with lifelong support needs. Survivors of TBI meet the lifelong support needs criteria because the psychological and emotional and physical and cognitive adjustment issues may never be fully resolved. Transitional services may assist some individuals in reaching an independent status but the outcome is difficult to predict when a person is beginning their community re-entry program.

Vocational and neuro-psychological evaluation as well as situational assessment in an integrated setting can assist in determining strengths and limitations. Realistic vocational planning must be based on individual needs and work readiness.

Some advocates for supported employment have suggested that vocational evaluation may not be necessary. However, in our experience, the evaluation process is critical. Situational assessment has been a vital component of the evaluation and adjustment with survivors of traumatic head injuries and has filled a gap in our services delivery system between the medical setting and successful community reintegration. The person who benefits the most from situational assessment is the individual, if the feedback can be presented in a manner that can be understood and incorporated into their self-concept toward the goal of gaining insight and realistic vocational planning. An evaluator or vocational counselor may indeed know what kind of job or career is within the ability of the TBI person, however, if the person does not have the same vocational goal or lacks awareness of their own strengths and limitations, then the job match may be doomed to failure. The person may not be satisfied with the job and adjustment issues may interfere with success no matter what kind of job coaching and support are available.

Situational assessment can identify other services or cognitive re-training needs as well as compensatory strategies that will help prepare an individual for successful supported employment placement and training. The feedback gained is valuable to the individual and in cases where a person is returning to a previous job, the employer may be more easily convinced to give the person another chance or modify a job. Often, in our experience, situational assessment has led to supported employment opportunities.

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INTEGRATING VOCATIONAL ASSESSMENTS WITH SPECIAL EDUCATION TRIENNIAL REEVALUATIONS: A MODEL

EDWARD M. LEVINSON

Abstract

This paper argues in support of integrating the vocational assessment and special education triennial reevaluation processes for handicapped students at the secondary school level. Advantages of integrating the two processes is discussed, and a model program integrating the two processes is briefly described.

Federal regulations governing implementation of P.L. 94-142, The Education for All Handicapped Children Act, require that handicapped children participating in special education programs be reevaluated for these services once every three years, or more frequently if conditions warrant. This evaluation is typically conducted as a multidisciplinary endeavor, involving many school personnel including: school psychologists, school nurses, teachers, and guidance counselors. Data is gathered relative to the student's intellectual, academic, social/emotional, and physical functioning, and is used to determine student progress, the need for continued special service, and unmet areas of need. Unfortunately, an assessment of vocational functioning is not required by law to be a component of this evaluation.

Vocational assessment is defined by the Vocational Evaluation and Work Association as "a comprehensive process that systematically uses work, real or simulated, as the focal point for assessment and vocational exploration, the purpose of which is to assist individuals in vocational development. Vocational evaluation incorporates medical, psychological, social, vocational, and economic data in the attainment of the goals of the evaluation process." Clearly, this definition suggests that much of the same information gathered as part of a handicapped student's special education reevaluation is also information gathered as part of a comprehensive vocational assessment. That is, medical, psychological, educational, and social information should be gathered when completing either a comprehensive vocational assessment, or a special education triennial reevaluation. Given the overlap between the information gathered as a function of completing each of these evaluations, this author recommends that the two processes be integrated and combined for handicapped students participating in school based

special education programs. That is, for these students, the vocational assessment and special education triennial reevaluation processes should become one in the same evaluation.

There are a number of advantages to combining these two processes. The degree to which the two processes complement each other renders each more effective in combination that each would be if completed alone. Given the overlap in the information gathered for each of these two evaluations, combining the processes reduces redundant information gathering. Rather than having the same school based professionals gathering the same information at two different times for two different purposes, an interfacing of the two processes creates a time and cost efficient method of assessment and educational planning. Because both the special education reevaluation and vocational assessment processes must be multidisciplinary in nature, and because this multidisciplinary team oriented approach to assessment is already in place in schools via the federally mandated triennial reevaluation process, it again makes sense to combine the two processes, rather than completing vocational assessments separately. With personnel training and slight modification of data gathering procedures, the various professionals involved in the triennial reevaluation process can learn to gather additional information relevant to the vocational planning process, and can learn to use this information in vocational planning. Lastly, some vocational assessments completed in the schools are not comprehensive in scope, are completed in isolation, and do not consider psychological, educational, social, and medical data. That is, an assessment of vocational functioning is completed without consideration of a student's other aspects of functioning. Obviously, such a narrow assessment focus restricts one's ability to understand and use the information which has been gathered. Combining the vocational assessment and special education reevaluation processes insures comprehensiveness, allows for a holistic assessment of the student, and encourages the development of a vocational plan based upon all aspects of a student's functioning.

Consequently, the author offers the following vocational assessment model which integrates the vocational assessment and special education reevaluation processes. Consistent with many contemporary assessment programs, the model incoporates a two phase assessment plan. A Phase 1 vocational assessment is conducted at the time of a handicapped student's triennial reevaluation in either the 6th, 7th, or 8th grades, depending upon when the student is due for their triennial reevaluation. All handicapped students participating in special education programs must be subjected to a reevaluation in one of these three grade levels, since the law requires that the evaluation be completed once every three years. A vocational evaluator is a member of the multidisciplinary team conducting the reevaluation, and collects information relative to vocational interests, vocational aptitudes, and work habits. Other team members are involved in gathering vocationally specific information as well as their traditional information. For example, the school psychologists, in addition to completing a traditional psychological evaluation of the student, may also assess vocational interests and work habits via interviewing, observations, and use of paper and pencil tests. The school social worker, in addition to completing a social history, may gather information relative to the vocational expectations parents possess for their children, and the degree to which those expectations are realistic. They may also consult with parents as to what prior work experiences and vocational interests the student has. Teachers, guidance counselors, and others may also gather similar information via interviews with and observations of the student. Following information gathering, a multidisciplinary staffing is conducted

in which all information is shared, and recommendations are made relative to educational and vocational placements, and instructional needs. The vocational evaluator can combine all vocationally specific information gathered by the team, and assist the team in the development of a vocational component for the student's Individual Education Plan (IEP).

A Phase 2 assessment is initiated during the 9th, 10th, or 11th grade, again depending upon when the student is due for their triennial reevaluation. The Phase 2 assessment is upon referral only, and is for those students for whom the Phase 1 assessment was inadequate for planning, or who require a more comprehensive, experientially based assessment for program planning. The Phase 2 assessment is completed at a regional vocational assessment center by vocational evaluators, utilizing work sampling, situational assessment, and simulated work experience assessment technology. The results of this 4 1/2 day assessment are also combined with the data gathered by other team members, presented at the triennial reevaluation staffing, and used in the development of a vocational component of the the student's IEP.

This paper has argued that the integration of the vocational assessment and special education triennial reevaluation processes for handicapped students will result in an evaluation process which will be comprehensive, and time and cost efficient, mulidisciplinary in scope, and will consider all aspects of a student's functioning. It is recommended that those in the process of developing school based vocational assessment programs consider such interfacing of the two processes. Those readers interested in a more detailed discussion of the means by which such an integrated assessment program might be developed are referred to Levinson & Capps (1985), Hohenshil, Levinson, & Buckland-Heer (1985), and Levinson, Peterson, & Elston (in press).

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THE ROLE OF SCHOOL PSYCHOLOGY IN VOCATIONAL ASSESSMENT

EDWARD M. LEVINSON

Abstract

This paper discusses the roles that school psychologists can assume in the vocational assessment of handicapped youth. It is argued that school psychologists, by virtue of their expertise in intellectual, academic, and personality assessment, can assist vocational evaluators and other school based professionals in gathering data relevant to the vocational planning process.

In recent years, much has been written relative to the school psychologist's involvement in the vocational programming of handicapped students, particularly in regard to the provision of vocational assessment services (Capps, Levinson & Hohenshil, 1985; Heinlein, Nelson, & Hohenshil, 1985; Hohenshil, 1982; Hohenshil, Anderson, & Salwan, 1982; Hohenshil, Levinson, & Buckland-Heer, 1985; Levinson, 1984; Levinson & Capps, 1985; Levinson & Shepard, 1982; Shepard & Levinson, 1985). That two major publications of the National Association of School Psychologists (Best Practices in School Psychology and Children's Needs: Psychological Perspectives) each include a chapter relevant to the topic of vocational programming (Hohenshil, Levinson, & Buckland-Heer, 1985; Levinson, 1987; respectively) attests to the significance of the topic for the profession of school psychology. Additionally, NASP's Professional Conduct Manual (NASP, 1985) in its description of Standards for the Provision of School Psychological Services specifically states that "Psychological and psychoeducational assessments include consideration as appropriate in the areas of personal-social adjustment, intelligence-scholastic aptitude, adaptive behavior, language and communication skills, academic achievement, sensory and perceptual-motor functioning, environmental-cultural influences, and vocational-development, aptitude, and interests" (underline added) (p.31). In reference to interventions, the standards state "school psychologists facilitate the delivery of services by assisting those who play major roles in the educational system (i.e. parents, school personnel, community agencies). Such interventions consist of but are not limited to: inservice training, organizational development, parent counseling, program planning and

evaluation, vocational development, and parent education programs" (underline added) (p.31).

Research has indicated that school psychologists are both interested and to some extent involved in vocational aspects of practice. Pfeffer (1978) in a survey of individuals in leadership positions in NASP found that a majority of the respondents viewed vocational counseling and vocational development as areas in which school psychologists should participate. In a survey of school superintendents, school psychologists, and school psychology trainers in Virginia, Murray (1975) found that administering, scoring, and interpreting vocational interest inventories and making recommendations for placement of students in vocational training programs were activities in which the respondents reported that school psychologists should be involved. Similarly, Shepard & Hohenshil (1983) reported that more than 50% of their respondents indicated some involvement in identifying handicapped students for vocational programs and in making recommendations to administrators regarding vocational placements. Most recently, Levinson (1988) studied Pennsylvania school psychologists and found that to some degree 34% had performed vocational assessment, 39% had performed vocational counseling, 41% had consulted with vocational instructors, and that 13% had performed vocational program or curriculum development activities in their practice.

There are pragmatic and practical reasons for the school psychologist's involvement in vocational endeavors. Many definitions of vocational assessment, such as that proposed by the Vocational Evaluation and Work Adjustment Association (VEWAA) (VEEWA, 1975), actually incoporate a psychological component. It is a well accepted notion that intelligence test data, academic achievement test data, personality assessment data and adaptive behavior data all have relevance for vocational programming.

Although school psychologists perform a variety of roles in the schools, a major responsibility is the completion of psychoeducational evaluations of handicapped children. It is via this assessment role that school psychologists can assist in the completion of school based vocational assessments. Much of the data gleaned from a traditional psychoeducational evaluation has vocational relevance. For example, intelligence test data can be used to assist in determining the degree to which an individual might attain success in a given vocational training program, and the degree to which certain jobs which emanate from training in a given program may be realistic vocational options for the client. Research conducted by Heinlein (1987), for example, has indicated that the factor structure of the Wechsler Intelligence Scale is similar to the factor structure of some aptitude tests. This data supports such use of intelligence test data, and also suggests that, in some ways, intelligence test data gleaned by school pasychologists may be used in the same way as traditional aptitude test data. Future research of this nature may eventually support the substitution of aptitude test data with intelligence test data, thereby eliminating the need for expensive and time consuming aptitude assessment. Since most clients participating in vocational assessments will already have been tested with intelligence tests (and this information will already be available), such substitution may serve to streamline the vocational assessment process, and render the process more efficient. Because many frequently used intelligence tests are superior to aptitude tests in regard to psychometric and technical characteristics, such substitution may also serve to increase the reliability and validity of the overall assessment process. At the present time it is premature to substitute aptitude data with intelligence test data, and both should

continue to be considered in vocational assessments.

As part of their psychoeducational assessments, school psychologists frequently assess academic functioning and adaptive behavior. Like intelligence testing, achievement testing and assessment of adaptive behavior can be used to identify deficits in academic and social skills that might obstruct vocational training and placement. School psychologists are perhaps the most competent school based professional to conduct personality assessments, and frequently include such an assessment in each of their psychoeducational evaluations. Personality assessment data can be used to identify the degree to which traits possessed by an individual will either assist or inhibit training and eventual functioning in a particular occupation. Holland (1985) has argued that the choice of a vocation is simply the expression of personality, and has demonstrated that individuals who choose similar occupations have similar personalities. Research has indicated that personality assessment data can be used to predict both job performance and job satisfaction (Holland, 1985). Given the intimate relationship which exists between personality and vocational adjustment, the school psychologist's ability to assess personality may be the psychologist's most valued contribution to the vocational assessment process.

In addition to psychoeducational skills, consultation and intervention skills can be applied by the school psychologist to facilitate the vocational evaluation process. Psychologists can be requested to consult with vocational evaluators concerning appropriate assessment instruments and strategies to employ with a particular client, and the degree to which intellectual and social/emotional difficulties may affect a client's training or employability. Psychologists can also effectively interpret the results of evaluations to medical, special education and vocational training personnel, and work with these professionals in developing an overall rehabilitation plan for a client.

Finally, the development and implementation of school-based vocational assessment programs involves the selection, use and interpretation of vocational tests. As Egerman & Gilbert (1969) have previously suggested, those professionals frequently entrusted with this responsibility have had limited training in psychology, and are often times ill-prepared to deal with the psychometric and measurement issues that development and implementation of an assessment program requires. In contrast, school psychologists are well trained in assessment methodology, and knowledgeable about psychometric and measurement issues. Consequently, involvement of the school psychologist in the establishment and implementation of a vocational assessment program can reduce the risk of inappropriate selection, use, and interpretation of assessment instruments, and increase the overall validity of the vocational assessment process.

Although the initiation and implementation of school based vocational assessment programs must be multidisciplinary in nature, this paper has argued that school psychologists, by virtue of their expertise in intellectual, academic, and personality assessment, may come to assume a key role in the vocational assessment process. It is hoped that this paper has outlined the degree to which school psychologists can support the vocational assessment process, and has encouraged vocational evaluators to seek out the services of school psychologists and work collaboratively with them when conducting vocational assessments of handicapped students.

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CURRICULUM BASED VOCATIONAL ASSESSMENT AT THE MIDDLE AND SECONDARY SCHOOL

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Abstract

The process of curriculum based vocational assessment in Shawnee Mission Schools began at the middle school level with the development of the Practical Arts Evaluation System. Practical arts courses in business, home economics, and industrial arts are the basic foundation of successful participation in regular vocational education programs. Therefore, the initial process for curriculum based vocational evaluation in this district included the development of an evaluation system which would provide meaningful and relevant business, home economics, and industrial arts information upon which recommendations could be made for further vocational programing.

Practical Arts Evaluation

The ultimate purpose of the Practical Arts Evaluation System is to give special needs students in grades 7 - 12 an opportunity to explore a wide range of "hands-on" skills which they would encounter in regular practical arts classes, vocational classes, and employment. Within the framework of a simulated work environment students complete a progression of over 140 work sample activities designed to evaluate basic skills in the areas of business, home economics, and industrial arts.

With the increasing emphasis for special needs students to have exposure to the working world and regular vocational programs this evaluation system allows students to experience an overall introduction to practical arts skills and at the same time provides evaluation date which addresses the following questions:

1. What practical arts skills are students actually able to perform?
2. How much assistance do they require to complete those skills?
3. What is the quality of their work?
4. Is their work rate at a competitive level?
5. What kinds of skills interest them the most?

The results of the evaluation are used to make recommendations for additional pre-vocational, vocational, and work experience training. For senior high students the evaluation information is most often used to make recommendations for work experience and regular vocational programs. For middle school and junior high students the information is used primarily as a basis for placement in special needs practical arts programs, other special vocational needs programs, and regular practical arts classes.

At the end of the evaluation term a summary report of results is prepared and sent to designated individuals. The information on the summary report is also used by special education staff to document vocational strengths and weaknesses on the IEP as well as to determine short and long term goals.

There are 24 categories of activities within the three areas of business, home economics, and industrial arts. Each category has 6 activities ranging from simple to complex. For example, in the first of the six activities within the category of alphabetizing students place 26 cards in alphabetical order. In the last of the six activities there are 117 cards.

Following is a listing of the 24 categories:

BUSINESS
- Alphabetizing
- Library Card Filing
- Numerical Sorting and Sequencing
- Collating
- Typing
- Making Change
- Cash Register
- Ten Key Adding Machine

HOME ECONOMICS
- Food Measurement
- Food Service
- Food Preparation
- Food Weights
- Cloth Measurement
- Hand Sewing
- Machine Sewing
- Cloth Construction
- Telling Time

INDUSTRIAL ARTS
- Shop Measurement
- Using wenches and bolts
- Using screws and nails
- Using shop saws
- Wood Projects
- Electrical Projects
- Metal Projects

Administration

The basic format of this evaluation system follows a general programmed instruction process whereby the student competes with himself/herself instead of with a normed group of individuals. By using criterion referenced activities which directly relate to the various curriculum areas, evaluation information becomes both diagnostic and prescriptive.

The primary purpose of the system is to evaluate as opposed to instruct in the basic skills and work behaviors associated with success in entry level employment and regular practical arts/vocational programs. The learning which takes place is purely incidental to the evaluation process and is a result of short sequential instruction provided from one activity to the next.

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THE ROLL OF ASSESSMENT IN THE TRANSITION/EDUCATION PROCESS

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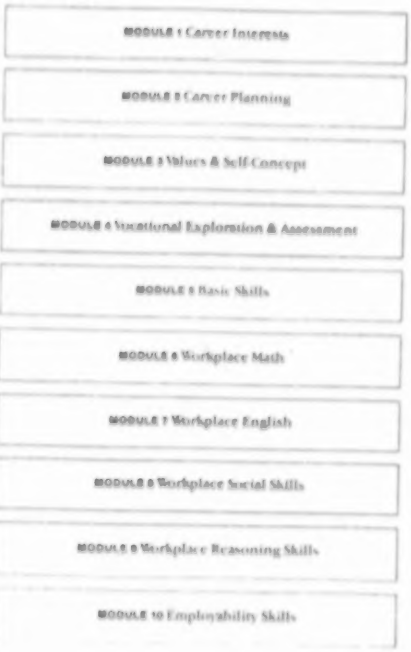
Abstract

More and more emphasis is being placed on the consolidation of efforts on all programs that serve special needs, at-risk, and limited English proficient (LEP) youth and adults. This consolidation is directed toward assisting the individual in becoming a fully-participating member of our society. This approach, encouraged by the force of federal laws, focuses on the total needs of the student or client rather than a single aspect or need. The overriding goal is the smooth transition from school or institution to the workplace. The focus of this talk is on the roll of assessment in the transition process. Issues covered within this talk are: interest screening, career planning, values/self-concept, vocational exploration, vocational assessment, workplace literacy (math, communications, social skills, and reasoning skills) and employability skills.


MODULE 1 Career Interests
MODULE 2 Career Planning
MODULE 3 Values & Self-Concept
MODULE 4 Vocational Exploration & Assessment
MODULE 5 Basic Skills
MODULE 6 Workplace Math
MODULE 7 Workplace English
MODULE 8 Workplace Social Skills
MODULE 9 Workplace Reasoning Skills
MODULE 10 Employability Skills

We will begin this talk by examining what has recently taken place in the field of vocational assessment in the educational process. On October 19, 1984, Public Law 98-524 of the 98th Congress of the United States passed the Carl D. Perkins Vocational Education Act (HR4164). This law forced all secondary high school vocational education programs that receive federal funds to comply with the new federal law. Part of the federal law (Title 2A) required that each handicapped or disadvantaged student that enrolls in a vocational education program shall receive "an assessment of interest, abilities, and special needs of such student with respect to completing successfully the vocational education program". That was one of five prescriptive requirements under Title 2A.

That above-mentioned requirement is where the problems began for vocational assessment in the schools. Up until 1984 it was a voluntary act for school districts to set up an assessment program, and after 1984 it became federal law. The window of opportunity has been opened for vocational assessment in the schools. Unfortunately, little or no knowledge existed within the educational community as to the proper approaches in setting up a useful vocational assessment process. Many millions of dollars have been spent since 1984 in an attempt to meet the requirements of this law. Unfortunately, very few assessment programs have been carefully thought out, planned, and implemented. The result is a very negative mark on vocational assessment for the whole industry.

The intent of this talk is to try to help clear the air, and to forge a direction that can be useful for both education and vocational assessment personnel. It is my belief that vocational assessment can be a very vital and effective tool in not only placing students in programs, but, more importantly, in helping guide school personnel on curriculum matters.

Let's take a look at why vocational assessment has failed in the educational system; then we will take a look at what recommendations I propose to improve the delivery of vocational assessment services in an educational setting. I believe that the major reason for the failure was that there was little or no understanding as to the fundamental needs of the educational process by people who were setting up vocational assessment systems under the Vocational Education Act of 1984. Keep in mind that the ultimate goal is the same for both students and adults in the assessment process--that role being employment. However, one major difference is that the students who are to receive the vocational assessment are approximately 13 to 14 years old, and are in the 8th or 9th grade. They will not be ready to enter

the labor force for some years. Therefore, the assessment process must be geared around what can be done with the student in the educational process.

Simply stated, I believe that there are two different models of assessment. There is an educational model, which functions in the educational setting, and a medical model, which functions in more of a rehabilitation setting. The educational model must be sensitive to the type and age level of the student. The younger the age, the more career-exploration activity should be incorporated into the vocational assessment process, coupled with academic assessment and remediation related to the workplace.

Vocational assessment in the educational setting is a process. It is not an event. It is a developmental process that begins with interest identification, and ends with an individualized competency-based vocational plan. This plan, since it is formed in a developmental process, must be assessed on an ongoing basis, and adjustments made as needed. I personally feel that aptitude assessment approaches in a secondary educational program have little or nothing to do with what is truly needed in the assessment process for the student. I believe that the model should begin with interest screening, and the results should relate directly to courses that an individual should take while in middle or high school. This interest-screening device should be utilized between the 6th and 8th grades.

After interest screening, career planning is the next step. Career planning should include the opportunity to explore careers by reading occupational briefs, by viewing filmstrips, by taking a look at various vocational programs within the school district, by looking at occupational settings within the community, and any other information the student can obtain about the occupation.

The next step is occupational exploration through the use of work samples. I believe that work samples can be a very viable tool for the student to provide an opportunity to explore careers. Keep in mind that we are keeping this at more of an exploratory activity than an aptitude assessment approach. In exploration of work samples, a crossover into academics, is very important. This is especially true when dealing with the at-risk or drop-out-prone students who see little or no relationship between interests and academic skills. Once this crossover has been established, and interest patterns have become more defined, assessment of basic skills related to the workplace should take precedence. This might occur in the 8th or 9th grade.

I strongly recommend reviewing the work of Arthur Smith (1975) or James Greenan (1983). The scope of their work centered around analyzing workers in various job situations and finding out what types of academic competencies are necessary in order to function within their jobs. The results show that there are four common areas: math, communications (speaking, listening, reading, and writing), social, and reasoning skills. These four areas are what I refer to as workplace literacy.

We at The Conover Company have been developing assessment and remediation systems built around this approach to workplace literacy since 1981. I truly believe that the keys to opportunity within the workplace have everything to do with the person's ability to function in those four critical areas. Unfortunately, most of the assessment approaches developed in the past have centered around eleven aptitudes of The Dictionary of Occupational Titles, and the general educational development requirements for the occupation. Although this information is useful, it has little value when planning the curriculum for an 8th or 9th grade student.

Recent Department of Labor funding for JTPA, along with the major revisions in the Adult Education Act of the Elementary and Secondary School Improvement Amendments of 1988 (PL100-297), and also the Omnibus Trade and Competitiveness Act of 1988 all target the same issue--workplace literacy. Workplace literacy, or the ability to handle simple math, communications, social and reasoning skills, are the essentials for success in the workplace, and should be the foundation for the assessment process in the educational setting. If a student is to truly make a smooth transition from school to work, then the assessment process should be in place to help. But in order for the assessment process to be useful, the educational setting has to be geared toward the needs of both the student and the employer. Vocational assessment is therefore challenged to make itself more meaningful for this educational process.

Meaningful data collected on students about interests and relative academic abilities as they relate to the workplace, can serve as useful tools in the challenge to make education more responsive to preparing people for the workplace.

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YVDP: An Intervention Strategy for High School Dropouts

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Abstract

A program consisting of a vocational evaluation/development component and a reading component was provided for 25 youths who had dropped out of high school. The program was provided using the facilities of Arkansas Tech University (ATU) located in Russellville, Arkansas, and was funded by a local community service agency that had specifically requested the vocational and reading components as a service for area youths who had dropped out of high school. Program purposes were to study, assess and evaluate the vocational potential of individual participants; to provide a reading program and assess the gains of individuals accessing the reading program; to encourage individual involvement of participants in the evaluation process; to prepare and submit an individual vocational development plan to the funding agency; and to provide follow-up services aiming toward maintaining successes, preventing failures, and providing a resource for individual participants in their endeavors toward further education or training. Selected measurement tools were used to evaluate program outcomes. Indicators of success were established as increased scores on selected measures from pretest to posttest. Other indicators of success were based upon the number of participants completing the summer phase and follow-up phase of the program. Results indicated that the group of participants who completed the summer program had significant improvement in reading, job seeking, and social skills. Results were discussed in terms of program success, ways to improve program implementation, and need to continue such a program.

Mid April, 1988, representatives of Arkansas River Valley Action Council/Job Training Partnership Act (ARVAC/JTPA), an area community service agency serving ten counties in Arkansas, met with representatives of Arkansas Tech University Behavioral Sciences faculty to request the faculty develop and implement a youth (age 14-21) reading, vocational evaluation, and follow-up program for a maximum of 50 youths that had been dropped out of high school for at least one year. ARVAC/JTPA wanted the program implemented by summer of 1988 which did not allow extensive planning and pre-program study.

In establishing a need for such a program, there was an implicit assumption (due in part to ARVAC/JTPA's willingness to request and pay for a program which might be helpful to high school dropouts) that there was a problem in Arkansas with high school dropouts. Media reports and political attention directed at the problem of high school dropouts and potential dropouts (at risk) helped solidify that assumption.

Initial inquiries involved discussions with ARVAC/JTPA personnel, local school counselors, area school administrators, state education officials, and a review of limited materials about the Arkansas dropout population and other related reports about the problem of high school dropouts nationwide.

A report, The Forgotten Half: Non-College Youth in America, by the William T. Grant Foundation (1988) showed there were approximately 20 million 16-24 year olds in the United States who would not seek college education and many of these youths were high school dropouts. The report indicated the lack of advanced education would hinder youth in their attempts to support themselves and future families due in large part to unemployment, underemployment and/or lack of economic opportunity. Some of the major conclusions of the report included:

1) the recognition that young people learn in different ways and that schools should offer more flexibility in ways of teaching and places where taught.

2) a recommendation that young people be exposed to various occupations to learn about work and about themselves.

3) a recommendation that schools encourage "dropping in" after a youth has recognized the value of school.

4) a recommendation that government and community institutions offer a variety of "added chance" programs for youth who are out of school and out of work.

5) and a recommendation of greater investment in basic learning for disadvantaged children.

Information was sought from both local school officials and written reports about the dropout problem in Arkansas. In 1985, Arkansas Advocates for Children and Families reported that 20-30% of Arkansas youth either dropped out or were pushed out of high school. In October, 1987, the Arkansas Democrat published results of studies which indicated that 25% of Arkansas high school students dropped out. Both reports suggested the high dropout rate affected the state economy.

One school official representing a school in Yell County, Arkansas, indicated the dropout rate for 1987 was approximately 30%. An informal telephone survey of eight area high schools, supplemented by reports from the State Department of Education, indicated a dropout rate ranging from 3-13% with 5-6% dropout rate being most often cited. Inquiry into the discrepancy between the 30% rate and the 5-6% rate cited by the schools resulted in information which established that most schools surveyed did not have consistent inter-district means to define, track, and establish the school's dropout rate. The discrepancy between the 30% and 5-6% citations was not due to the one high school being inadequate but to differences in computational methods. The 30% dropout rate was computed using a method which accounted for the number of students enrolling in the 9th grade or freshmen class and following that class through completion of the 12th grade. The lower estimates were based upon the number of students enrolling in the 12th grade and the number completing the 12th grade or by simply establishing a rate on a yearly basis.

A 1986-87 State Department of Education report of students removed from pupil attendance rolls indicated the total enrollment in Arkansas public schools was 206,383 in grades 7 through 12. The report showed that 9,706 students dropped out (2,603 blacks, 7,030 white, 73 other) during the 1986-87 school year which resulted in a 4.7% dropout rate. That rate was based upon using a formula which was different than local districts used to report their dropout rate.

Consistent and accurate computation of the dropout rate was/is an important consideration. (e.g. Strother, 1986; Hammock, 1986; Wehlage and Rutter, 1986). For example, a 5% dropout rate would hardly be considered as serious a problem as a 30% dropout rate. The problem of inconsistent computation of the dropout rate did not seem peculiar to Arkansas. Deborah Strother (1986) reported, similar to my experience, that school districts used different methods to compute the dropout rate.

Floyd Morgan Hammack (1986) suggested a twenty year old problem with consistency and comparability of dropout reports and found different computational formulas used by different districts. The most common computation reported by Hammack was the cross-sectional rate obtained by dividing the number of dropouts by the total enrollment on a yearly basis. Other methods reported by Hammack were following a class through the secondary years and the projection method from cross-sectional data to four year rates. These three different approaches were discovered in the attempts to gather information on the dropout rate in Arkansas. Based upon information I gathered from the Arkansas State Department of Education and local school districts, I concurred with Hammack's criticism that much infomation obtained about the dropout rate was inadequate and confusing.

One local high school counselor provided the following general description of the high school dropout or potential high school dropout. The dropout was enrolled in lower level math courses, their parents were not involved in the educational process, the student was in trouble with the police, was an undisciplined student, was sick and had to go to the doctor frequently, didn't keep self neat and clean, had a low family income, and overall probably was not functioning above the 6th grade level.

This characterization compared to a number of characteristics mentioned by Strother (1986) in her review of the dropout problem. Similar characteristics mentioned were coming from lower income families, mothers had low educational expectations for their children, parents were not interested in monitoring child's school or nonschool activities, the student had more disciplinary problems in school, and student grades and test scores were lower. Others (e.g. Ekstrom, Goertz, Pollack, & Rock, 1986) discussed dropout characteristics compared to students who stayed in school.

Dropouts were characterized as having lower self-esteem, lower mean math scores, higher rate of absenteeism, close friends who were also alienated from school, expressed an external locus of control, and other characteristics.

Based upon information reviewed and studied at the time of establishing need for the program, it became evident the dropout problem was considered a national, state, and local problem. It was projected that the majority of the dropout population who would be enrolled in the program would have reading skills below the 6th-7th grade level and also would be economically and socially disadvantaged. The estimated 20-30% of high school dropouts in Arkansas suggested that traditional educational and community institutions had not adequately met the individual needs of a significant number of Arkansas youths and that this dropout population would create economic burdens not only for the individual but for the locale, the state, and the nation.

Deborah Strother (1986, p. 326) defined the dropout as "an individual whose natural progression toward graduation from high school has been interrupted." Section 5141 (b) (5) of Public Law 100-297 of 1988 102 Stat. 262, defined school dropout as "an individual aged 5 through 18 who is not attending any school and who has not received a secondary school diploma or a certificate from a program of equivalency for such a diploma." This definition was temporary (no longer than 60 days from passage of the law) until the Secretary of Education had opportunity to consult with groups and organizations to establish a standard definition. Both definitions addressed the delay or interruption of the educational process. Discovering the reasons for the interruption or delay, preventing the interruption or delay in the progression toward graduation, and offering alternative "added chance" programs were suggested means to address the problems of high school dropouts.

The requested program was proposed as an "added chance" program to address problems of a population who had been dropped out of school for at least one year. The program was planned as an intervention strategy offering a means for high school dropouts to learn more about their vocational assets and limitations, and develop reading skills from an instructional program of reading, social skills and job seeking skills.

The operational concept was that A.T.U. would provide the reading and vocational assessment program. Based upon the results of the vocational assessment, ARVAC/JTPA, the funding agency, would work with the individual to meet training and placement needs.

The program was named Youth Vocational Development Program (YVDP) and individuals enrolled would be referred to as participants.

Based upon information obtained, initial program design, and utilizing a participant centered philosophical approach, it was hypothesized that the intervention program would be successful in terms of participant achievement in reading skills, job seeking skills, and social skills. Successful participant achievement was defined in terms of the stated quantitative program goals of increasing the total reading grade equivalent by six months, increasing the accurate completion of a job application form by 10-20%, and increasing the percentile rank on the Employability Maturity Interview by 10-20 points. Improvement in social skills was measured by comparing an initial (pre) impression staff rating to an extended (post) impression staff rating.

Population

The population size was established as 25 participants rather than 50 because of facility, length of time required to complete a vocational evaluation, and the experimental nature of the program. Selection of the 25 youths was based on age, dropout status, and financial eligibility. The participant had to be 14-21 years old, have been dropped out for at least one year to avoid competition with public schools, and be financially eligible for ARVAC/JTPA services. The population was recruited and selected by the ARVAC/JTPA Youth Program Director. Twenty-eight participants were referred to YVDP, twenty-five participants actually started the program and three quarters through the program, eleven had dropped out. Fourteen participants completed the program with pretest and posttest scores. Of those completing the program, there were seven males and seven females ranging in age from 16 to 21. The grade completed in high school ranged from 7 to 11. Due to limited time to recruit participants, four did not meet the selection criteria of having been out of school for at least one year.

Measures

Pretest and posttest scores on different measures determined if the program quantitative goals were met and

served as a means to test the hypothesis.

The Nelson Denny Reading Test, form C, and the Nelson Reading Skills Test, Levels A,B,C - forms 3 and 4 were used for pre and post reading measures. The Ohio Literacy Test was used as a screening device to determine which Nelson reading test to use with each participant.

A standard application form and the Employability Maturity Interview, both developed by the Arkansas Research and Training Center in Vocational Rehabilitation, University of Arkansas, were used to test outcomes in job seeking skills.

A criterion based behavior rating scale developed by adapting instruments from the Behavior Observation and Report Writing Manual by Singer and a discussion of rating scales discussed by Redhouse (1977) was used to measure outcomes in social skills.

Personnel

An A.T.U. Rehabilitation Science faculty member was director, the Behavioral Sciences Department chairman was administrative co-director, the A.T.U. Director of Student Counseling and Development was reading consultant, and the Director of Rehabilitation Science was vocational evaluation consultant. Four recent A.T.U. graduates and one A.T.U. undergraduate were employed as instructors, vocational evaluator, and lab assistant.

Results

The YVDP assisted fourteen (14) individuals or 56% of the 25 referred participants through the summer phase of the program and conducted pretests and posttests on the 14 individuals in the areas of reading, job seeking skills, and social skills. A t-test was performed to determine if the pretest group mean differed significantly from the posttest group mean on the reading test results, the Employability Maturity Interview test results, the job seeking skills application form test results, and the criterion based behavior rating scale.

Reading pretest and posttest scores on the Nelson Denny Tests resulted in a mean score of 7.9 grade level pretest and a 9.957 grade level posttest. Results of analysis indicated that the participants did significantly better on the posttest than on the pretest, $t(13) = 3.159$, $p < .01$.

Pretest and posttest scores on the Employability Maturity Interview resulted in a mean percentile rank score of 57.79 pretest and 88.43 on posttest. Results of analysis indicated that the participants did significantly better on the posttest than on the pretest, $t(13) = 5.10$, $p < .01$.

Results of the scores on the job seeking skills application form, which yielded percentage scores, showed a mean score of 53.71 pretest and 73.36 posttest. Results of analysis indicated that the participants did significantly better on the posttest than on the pretest, $t(13) = 5.71$, $p < .01$.

The criterion based behavior observation rating form was used to rate participant behaviors based upon initial (pre) impressions about particpants and extended (post) impressions about participants. The participant's names were drawn by five YVDP staff members and rated on 6/29/88. On 8/12/88, participants names who completed the program were drawn by two staff members. Responses were established as positive, neutral, or negative. A percentage score was obtained on the number of responses in each category and a t-test was performed on the difference between the means of the positive respones of the observers from initial to extended impressions. Results of analysis indicated significantly more positive responses about participants from initial (pre) to extended (post) impressions, $t(12) = 5.36$, $p < .01$.

Of the 14 individuals who completed the YVDP summer phase, two enrolled in a vocational-technical school, one enlisted in the National Guard to get the GED and training, three enrolled in adult basic education classes assisted by ARVAC/JTPA with worksites (of those, one plans to enroll in a vocational-technical school in January, 1989), one got the GED, has started a job and plans to enlist in the National Guard, one got a job and is supporting his family, one had a baby and plans to start vocational-technical school in approximately one year, one discovered that he had his high school diploma and stated he might get a job with local industry, one has moved from the area and has been referred to Arkansas Rehabilitation Services for assistance due to a physical disability, one has not responded to efforts to make contact although contacts with family provided information that he is not working, does not wish to be referred to another agency and has not made contact with ARVAC/JTPA, and one enrolled in a vocational-technical school but dropped out.

Twenty-five reports were submitted to the funding agency. Eleven of the

referred participants dropped out and did not have posttest scores in their reports. Eight of the 11 who dropped out had significant pretest information which provided an information base for case management services in the event the individual applied for future ARVAC/JTPA services.

Discussion

As has been observed in various reports and studies (i.e. Wehlage & Rutter, 1986; Grant Foundation, 1988; et al.) about dropouts, the participants (dropouts) enrolled in the YVDP faced numerous economic, social, educational and employment disadvantages.

The characteristics of dropouts discussed in the literature and projected by a local high school counselor were quite accurate for the YVDP population. The problems which had led to their status became clear and significant as staff became more familiar with the participants. For example, it was easy for us to understand why a person was in trouble frequently or didn't value or do well in school when we heard stories about: an incestuous relationship; having been sexually abused by a step-father from a young age; having to assume the responsibility of mothering 5-6 younger siblings when the participant was only eleven; having to nurse a parent who had been shot by the other parent because of the death of a sibling in a traffic accident; suffering from delayed stress from having been the driver in a wreck in which a young person had been killed; having parents who had divorced when participant was 11-12 years old; having to work because the parents lived on a meager fixed income; having a drug/alcohol problem so serious there was not enough time to discover the underlying reasons prior to being shipped off to another program; having people in the family who were mentally ill; having gone through all the grades prior to dropping out with a probable undiagnosed learning disability; and being hooked on drugs in the 6th grade because friends pressured to try some. It became evident that there was no simple, single reason for dropping out and any effective program clearly needed to be able to address to a variety of problems.

Of the 25 participants who started YVDP, fourteen participants completed the program with pre and post tests. Eleven participants dropped out prior to completion of the program. Four of the eleven youths who stopped attending YVDP were officially dropped on 7/5/88 and the remaining seven were officialy dropped on 7/27/88. The eleven participants who did not complete the YVDP dropped out due to a variety of problems which included: family problems (4 participants), medical problems (1 participant), drug and alcohol problem (1 participant), financial problems (3 participants), needed to work (1 participant), program wasn't a GED program as had been communicated (1 participant) and unknown (2 participants). Two participants stated more than one reason for having dropped out.

Significant data were collected and reported to ARVAC/JTPA about eight of the eleven participants who dropped out. Those eight participant reports included results from a battery of tests and measurements which provided biographical data, information about reading skills, interest, performance I.Q., job seeking skills, and initial impressions about participant social skills. Two of the eight reports also included an assessment of math skills, a report of the Vocational Personality Profile and work samples measuring ability to make change and take personal messages. Behavioral observations were also contributory to the reports as six of the eight were enrolled for more than two weeks in YVDP. Considering that traditional vocational evaluation programs provide an assessment report based upon a one to two week evaluation (Vohiken, 1987), the funding agency received significant data on at least 22 of the summer YVDP participants.

The program was viewed as successful in terms of average achievement by participants who completed the program. Most participants were not only able to see impressive improvement from pretest to posttest scores but also established a group identity. Each participant left the program with more information than when they began and each participant had a vocational plan. Each participant was informed about follow-up contacts and made aware that they could contact the YVDP director for assistance.

The first reporting period of follow-up showed that YVDP had either made or attempted 149 contacts with the 14 participants who completed YVDP. At least two participants had crisis situations which in my estimation would have resulted in dropping out had not a major case management effort been taken by YVDP director and assistant in obtaining services to help meet basic needs.

Recommendations for changes in YVDP included use of an occupational math program which would expose participants to math related to the

job, modification of some of the program forms, restatement of several program goals, and acceptance of 30 referrals to allow for attrition in an effort to get 25 participants to continue the program through summer. Discretionary funds were recommended as helpful in preventing crisis situations and solving temporary financial crisis situations.

Although YVDP was viewed as a successful program in having accomplished most goals, how does one assess the outcomes of such a program in relation to the funding agency's needs? What were/are the funding agency's needs, capabilities, and limitations?

The funding agency's stated need in requesting YVDP was that a vocational assessment was needed to direct services in terms of placement and training for the individual to help accomplish a vocational development plan. The funding agency's education and training services potential were initially stated as a broad capability ranging from job placement to college education which could be procured in various geographic locations. It was later determined that mostly local placement and training was possible with funding agency support. Although college education was initially stated to be a service option, it was later discovered to be a near impossibility with support from the funding agency. The funding agency was capable of providing purchase of books for adult basic education classes to help get the GED, could arrange and pay for worksites, paid hourly wages for participants enrolled in YVDP, could pay for vocational school training, and could provide support services such as child care costs, transportation costs, and assistance with utilities when the funds were available.

The funding agency could not address issues such as the need for an eye examination and the purchase of glasses, assist with further specialized testing for a learning disability, respond quickly to financial crisis situations, pay for college education, nor easily provide training outside the local area, and could not easily mesh vocational assessment information obtained into a holistic approach of providing services to the individual participant. For example, there seemed to be an inability to recognize and respond to the urgency of financial crisis for individuals enrolled in vocational technical school who had limited opportunity to find work because of the training schedule. In view of the funding agency's capabilities, limitations, and needs, it was estimated by this writer that having a professional vocational assessment from YVDP provided information and a necessary follow-through commitment which the funding agency was not adequately prepared to handle. While the funding agency provided many valuable services, the emphasis seemed more geared to developing program ideas and paying for the implementation of programs rather than being geared to casework services for individuals. While YVDP results indicated that the program was a valuable program for the high shcool dropouts who participated, an important aspect of the program included the assurance that the funding agency would help meet the training and placement needs of the individual. Meeting the training and placement needs of socially, economically, and educationally disadvantaged youth who completed YVDP required a major case management effort. It was not clear if the funding agency had a real need or a means (i.e. case manager) to address a major case management effort.

Considering the special program capabilities and limitations of the funding agency, it appeared that participants enrolled in YVDP could have been served by funding agency programs already in existence. However, participants who completed the summer YVDP gained in reading, job seeking skills, and social skills. They were provided an added chance program as result of a cooperative effort between an institution of higher education and a local community service agency. The potential for continuing individual growth and development of the YVDP participant exists as a result of the cooperative effort in providing follow-up services. While participants could have been served by existing ARVAC/JTPA programs without YVDP, they would not have received significant achievement in instructional areas and ARVAC/JTPA would not have the significant vocational data about the individual. Also, the follow-up services provided thus far by YVDP are proving unquestionably invaluable to the total program effort. Without the major case management effort provided by YVDP, it is believed that participants would have had great difficulty achieving their vocational goals, due in part to participants having a limited knowledge base about how to obtain needed information and how to utilize information after obtaining it. In short, there is a need for intensive follow-up effort to increase the likelihood of successful achievement of participant vocational goals established by the summer phase of YVDP. It could be stated that the real value of YVDP to the funding

agency has been the ability of the program to be adaptive and flexible in an effort to meet participant needs.

While the YVDP was evaluated as a successful "added chance" program in terms of meeting many goals and providing quality services to the funding agency, are there other possibilities for such a program? Could the program be adapted from an added chance program to a preventive program in which a cooperative approach could be developed with the public school system?

Similar to the concept of education for all handicapped children, all potential high school dropouts should be served with a program (Wehlage & Rutter, 1986) which would allow them to continue and overcome the problems which lead to disruptions in the education process. The many characteristics of dropouts which have been identified are socially and economically handicapping just as having a physical and/or mental disability is handicapping.

It is clear that there is a nationwide push for approaches to prevent dropping out and to help those who have already dropped out. YVDP had characteristics identified in the literature (e.g. Ekstrom, et al., 1986; Wehlage, et al., 1986; Grant Foundation, 1988; et al.) as imaginative, innovative, and helpful to groups of people who often feel alienated from the public school system to the extent that they are either in process of being pushed out or dropping out.

From reviewing the literature, planning, developing, implementing and experiencing YVDP, and observing changes in YVDP participants (dropouts) that cannot be quantified, it is this writer's conclusion that a program such as YVDP could be a valuable preventive, added chance, or intervention strategy in addressing the problem of school dropouts.

(For tables, appendices explaining various tests and/or forms used in YVDP, or more detailed information about YVDP, contact Margaret Wilkerson, WPN 356, Arkansas Tech University, Russellville, AR 72801, phone 501-968-0283.)

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CONCURRENT VALIDATION OF THE ABBREVIATED McCARRON-DIAL SYSTEM FOR STUDENTS WITH MENTAL RETARDATION AND LEARNING DISABILITIES

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The purpose of this study was to investigate the concurrent validity of the Abbreviated McCarron-Dial System (MDS) with special education students. The sample consisted of 25 students with mental retardation and 25 students with learning disabilities. Each student was tested individually with the four instruments in the Abbreviated MDS which results in a prediction for vocational placement and a prediction for current earnings in the form of a percent of minimum wage. The criterion variables included three Valpar work samples and the actual current placement of the student. Correlation analyses used to examine the relationship between the Valpar percent and the MDS percent of minimum wage were high and significant. Correlations between the MDS placement and actual placement were also high and significant. Multiple regression analyses revealed that the majority of the variance in both the placement and percent of minimum wage criterion variables was accounted for by one of the Abbreviated MDS instruments, the McCarron Assessment of Neuromuscular Development (MAND). The MDS appears to be a valid vocational instrument that can be used with public school students although, it provides better predictions for students with mental retardation than for students with learning disabilities.

INTRODUCTION

One of the primary goals of public education is to assist students in learning basic skills so they can become productive members of our society. Vocational education is an important part of this process (Brolin, 1982). Recent legislation has ensured that special needs learners will have access to vocational education. The first step to appropriate vocational placement for these students is vocational assessment to determine skills, aptitudes, and interests in order that appropriate instruction and training can be provided.

One of the assessment instruments frequently used with special education students, and the vocational evaluation system most preferred by Texas vocational evaluators according to a 1981 survey (Ludlow & McGlasson, 1982), is the McCarron-Dial System (MDS) (McCarron & Dial, 1986).

The Abbreviated MDS consists of a battery of tests grouped into three factor areas. The three factor areas and the instruments used in each factor are: (a) The verbal-spatial-cognitive factor measured by the Peabody Picture Vocabulary Test-Revised (PPVT-R) (Dunn & Dunn, 1981); (b) the sensory factor measured by the Bender Visual Motor Gestalt (BVMGT) (Bender, 1938), and the Haptic Visual Discrimination Test (HVDT) (McCarron & Dial, 1975a); and (c) the motor factor measured by the McCarron Assessment of Neuromuscular Development (MAND) (McCarron, 1975).

Only one research study was found which used students in public school settings. The purpose of this study is to investigate the concurrent validity of the Abbreviated MDS with students who are mentally retarded or learning disabled in the public school system.

Research Questions

Research questions addressed by this study include:

1. What is the relationship between the predicted program level of the handicapped student obtained using the previously validated Abbreviated MDS regression equation and the actual program level of the handicapped student?

2. What is the relationship between each (and all) of the four variable scores in the Abbreviated MDS and the actual program level of the handicapped student?

3. What is the relationship between the percent of minimum wage obtained using the previously validated Abbreviated MDS regression equation and the estimated percent of minimum wage obtained by work sample analysis?

4. What is the relationship between each (and all) of the four variable scores in the Abbreviated MDS and the estimated percent of minimum wage obtained by work sample analysis?

McCARRON-DIAL SYSTEM - Uses in Educational Settings

A variety of articles advocate the use of the MDS in the public schools (Botterbusch, 1987; Dial & Henke, 1981; McCarron & Dial, 1980, 1986) or describe ways it may help in meeting the guidelines for vocational assessment in the schools. In a review of vocational evaluation systems, Botterbusch (1987) reported that the MDS can be used with special education populations including mentally retarded and learning disabled students

Since 1980, McCarron and Dial have advocated the use of the MDS in educational and school settings. Two uses of the MDS in schools are for individual programming about work criteria with students who have moderate to severe developmental disabilities or for pupil appraisal of younger learning disabled or developmentally disabled children (McCarron and Dial, 1980). Dial and Henke (1981) described procedures for developing the individual evaluation and program plan using a school-aged student as the case study.

Several other articles have described how educational settings are actually using the MDS with their students. Patton (1981) advocates using the MDS to develop vocational objectives in the Individual Education Plan (IEP). While Whitaker (1982) recommends using the MDS as a prevocational screening technique with handicapped students to provide the vocational teacher with an estimate of vocational-psychological-neurological potential of the student.

The MDS has also been used to assess general vocational ability and develop vocational programming with learning disabled or mentally retarded inmates, who qualified for special education services, while incarcerated in a minimal security federal correctional institution (Platt, Tunick, & Wienke, 1982). Shainline (1984) described the vocational assessment labs used in the Albuquerque Public Schools in Albuquerque, New Mexico which were equipped with the MDS and other vocational instruments in order to evaluate students at their high schools and assess vocational potential. Henke (1980) described how the MDS can provide a neuropsychological understanding of learning disabled students' abilities and prevent their inappropriate employment.

A research study completed by Hegenauer (1986) showed the relationship between MDS scores and vocational expectations of parents, teachers, and work supervisors of learning handicapped students. This is the only research-based article that describes the use of the MDS in the public schools. While approximately 1000 schools have purchased the MDS and use it for vocational assessment, no other published articles could be located which discussed its use in the public school system.

METHOD

Subjects

The subjects included in this study were 50 special education students [25 students diagnosed as mentally retarded (MR) and 25 students diagnosed as learning disabled (LD)] who were 16 years of age or older and currently enrolled or seeking placement in public school vocational education programs. The students were chosen from the files of two special education departments in suburban, predominantly middle class, white school districts in the Houston metropolitan area. The subjects ranged in age from 16 to 20 and were enrolled in grades 9 through 12 during the data collection period. The mean IQ for the total sample was 69.9, with a range from 28 to 106.

Instruments

Each student was evaluated using the Abbreviated McCarron-Dial System to obtain a prediction of vocational placement and estimation of current percent of minimum wage. Three Valpar

Component Work Samples (Valpar 1, Small Tools; Valpar 8, Simulated Assembly; Valpar 11, Eye-Hand-Foot Coordination) were chosen as one criterion variable because it can be compared easily with the MDS percent of minimum wage. The other criterion variable, actual placement level, was determined by interviewing the student and special education teacher, reviewing student records, and checking student class schedules. This information was provided to two outside raters who designated the current program level of the student according to the five MDS placement levels: Level 1, Daycare/Basic Skills which provides constant supervision and teaches self help skills; Level 2, Work Activity/Basic Prevocational training which involves using arts, crafts, and simple work tasks in a structured environment; Level 3, Extended Sheltered Training/Advanced Prevocational Training where students perform work tasks to elicit behavior change and habilitation; Level 4, Transitional Training/Vocational Readiness which provides temporary training including personal-social and work adjustment; and Level 5, Community Employment/Vocational Education where the student currently has a community job or vocational education program.

RESULTS

Interrater Reliability

Interrater reliability between the two raters used in determining the placement levels for the students in this study was moderately high (.88). When there was a disagreement about the level, the two raters were never more than one level apart. After discussion between the two raters they were always able to reach consensus.

Descriptive Statistics

The means of the four MDS predictor variables are: PPVT-R=63.86, BVMGT=71.58, HVDT=73.52, and MAND=76.02. These mean scores generally fall between the mean of the neuropsychologically disabled group (mean=55) and the mean of the normal population (mean=100).

Valpars 1, 8, and 11 Total were weighted equally to obtain the A% (actual percent of minimum wage) criterion variable for each subject. Scores near 100% represent performance comparable to an entry level worker. The means are: Valpar 1 = 42.24, Valpar 8 = 39.08, and Valpar 11 Total = 86.16; and a total Valpar mean of 55.94.

Research Questions

The first research question examines the relationship between the MDS predicted program level of the handicapped student and the actual program level of the handicapped students obtained through rater consensus. There is a high significant correlation between the MDS placement levels and the actual placement level of the handicapped students ($r=.84$, $p<.0001$).

The second research question was answered by examining the intercorrelations between the predictor variables and the actual placement and by conducting a multiple regression analysis to obtain the total relationships between each of the four variables and the actual placement level of the handicapped student. There was a significant correlation ($p<.0001$) between each of the predictor variables and the placement criterion variable. The results of the multiple regression analysis reveal that the R-Squares for all four variables were significant for the total sample (.75, $p<.0001$) and that the MAND accounts for all but 5% of the variance in the total sample.

The third research question examines the relationship between the MDS percent of minimum wage and the Valpar estimated percent of minimum wage. The results reveal a significant correlation ($r=.81$, $p<.0001$).

The final question was answered by exploring the intercorrelations between the MDS variables and the Valpar percent of minimum wage and by using a multiple regression analysis to determine the total relationship between each of the four variable scores and the actual percent of minimum wage of the handicapped student. All correlations for the total sample were significant at the $p<.0001$ level. The highest significant correlation was between the MAND and the actual percent of minimum wage (.88). The R-Squares for all four variables were significant (.78, $p<.0001$), and the MAND accounts for the greatest amount of variance (.77).

CONCLUSIONS

1. MDS placement levels appear valid due to the high correlations between them and the actual placements.

2. The high correlations between the MDS percent of minimum wage and the three Valpar components provides evidence for their validity.

3. The MDS predicted placement of MR and LD students well beyond chance.

4. Placement and earnings predictions were more accurate for MR than for LD students.

5. The MAND could be used alone to determine placement without much loss in predictiveness.

6. The MDS predicted current percent of minimum wage, as measured by the Valpar work samples, for the MR and LD students well beyond chance.

7. The MAND could be used alone to determine earnings without much loss in predictiveness, for MR and LD students.

8. The MDS appears to be a valid vocational assessment instrument that can be used with MR and LD students, although it provides better predictions for the MR student.

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USE OF A ROBOTIC SYSTEM IN VOCATIONAL ASSESSMENT: EXPLORATORY STUDY.

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Abstract

Whether they are called a manipulator, robot workstation or robotic aid, all rehabilitation robotic systems now under development aim to provide a smart aid to patients without arm function, in order to make it possible for them to perform ADL, vocational and recreation tasks under their own control. Our group has developed another concept: the robot aide in rehabilitative testing, evaluation and treatment. One application currently being tested is a robotic system that may be useful in some aspects of voca- tional assessment. The system con- sists of the following: IBM-PC com- puter with printer; UMI-RTX robot; robot monitoring system (a control computer resident within the IBM-PC); two touch-sensitive buttons, one on the robot arm ("target") and one located next to the subject ("home pad"). With this set-up, various determina- tions can be made:

- anthropometric mapping: what is the size of the work envelope of the subject?
- endurance: what is the subject's capacity for repeated movements (near the trunk, at the extremes of his/her work envelope, or traveling between these points), at high speed bursts or substained over a longer time?

Trials of this system in the clinical environment are now under way. They aim to determine the quality of the system as constructed, the usefulness of the information it provides to the vocational evaluator, and the possibilities for expanding the system. Also discussed are the rationale for and design of the system and its current applications, the results of the field trials, and the prospects for the future of robotics in rehabilitive testing and evaluation in general and in vocational assessment in particular.

Introduction

A robot is a machine that, under computer control, receives information from the environment through sensory channels (feeling, vision, hearing), "interprets" that information, and interacts with the environment based on its conclusions. Although we are not at the level in robotics technology that is seen in science fiction movies such as Star Wars or Short Circuit, robots are set apart from other machines because they can receive sensory input and act according to that input.

Most robots consist of a base with an "arm" with various attachments, depending on the application, and a control computer. In industry, robots weld, spray paint, do assembly and sorting work, etc. In the field of health care, robots are being used in a number of specialized applications, including surgical assistants, laboratory technicians, and transporters for tray delivery and other menial tasks (cf. Engelhardt, 1986).

Robots were first introduced into the field of rehabilitation as mechanical personal care attendants (PCAs), or smart aids. The Case Institute of Technology developed the Case Manipulator, a "computerized orthosis", in the early 1960's. Currently, at least nine different groups in five countries are at work on further development of what is variously called a robotic aid, manipulator, robot arm or work station. (See Hussey and Taylor, 1987; Seamone and Schmeisser, 1985; Leifer et al., 1987; O'Riain, 1987; Cameron, 1987; Harwin et al., 1987; Fu, 1985; Anderson, 1987).

All these projects have different premises and goals. The robots are in different stages of development; the only one being marketed commercially (as of this writing) is the Boeing workstation (Fu, 1985) aka PRAB Command, a voice-activated personal workstation which makes it possible for a quadriplegic to perform many clerical and managerial jobs. The Johns Hopkins robot arm has similar capabilities (with chin control rather than voice input) and also can brush teeth and feed (Hussey and Taylor, 1987). The Stanford robotic aid can do selected activities of daily living. Other features under development are vision, in the Spartacus project (Kwee, 1987), and mobility, in the Stanford project (Leifer, 1987b).

It is likely that in the near future rehabilitation robot aids will be

mobile, have vision systems and speech input/output, and will perform a large number of tasks in the home and workplace. Whether they will be affordable and acceptable to people with a disability is unknown.

Robots as rehabilitation aides

Given the work underway on robotic systems that provide assistance in ADL, vocational, and recreational tasks, our project took a different approach: the robot as a tool in evaluation and treatment in rehabilitation. Therapeutic applications of robots in rehabilitation were previously developed by Khalili and Zomlefer (1988), who constructed a continous passive motion robot; the Cambridge group, which built a manipulator to assist in the developmental education of young children with severe physical impairments (Harwin et al., 1987); and Engelhardt and colleagues, who piloted robots for range of motion of wrists and ankles (Engelhardt, personal communication, 1988). However, it appears that none of these applications has gone as far as ours in using the ability of robots to "sense", "think" and "act".

The purpose of our initial three-year project was to explore to what degree a robot can be used in the field of rehabilitation for physical disability, as an aide to or tool used by therapists in testing and treating patients.

Much of therapy provided by occupational and physical therapists consists of showing a patient (new) movements, guiding him or her through them, providing feedback on adequacy of performance, and then encouraging the patient to repeat the movement or task until it has been mastered or the therapeutic effect has been accomplished. These are all things a robot can do, given the necessary software and hardware attachments. In principle, a robot system has many advantages over a therapist:

- It never tires, and is available 24 hours a day, seven days a week, without over-time payment;
- It never gets bored; it repeats the same movements with equanimity and without burnout;
- It is never distracted; it maintains its level of concentration and diligence continuously.

There are, of course, disadvantages. Even the most advanced robot cannot offer solutions to unique patient or situational problems, and is unable to observe the patient's pain, discomfort, refusal to cooperate, or other problems, and act accordingly. That means that for patients with compromised competence (e.g. after stroke or traumatic brain injury), a therapist should be at hand. However, if the robotic system is designed in such a way that it cannot harm the patient, it appears possible for one therapist to monitor several robots, each "administering" therapy to one patient.

Formal testing of a patient by rehabilitive therapists is performed as part of initial assessment, and repeated at intervals during the course of treatment. More and more, the trend is toward objective quantitative testing. Measures like grip strength and walking speed are collected using simple instruments; but clinics nowadays are also using sophisticated equipment like microcomputers hooked up to isometric exercise machines or to gait recording equipment. This development is driven by the availability of technology, but also by the need to provide a scientific basis for practice, and issues of accountability: third party payors increasingly want written, quantitative evidence of progress and outcomes of rehabilitive treatment. In much of the new technology available to therapists, the distinction between testing materials and exercise equipment has disappeared: the machine provides continous quantitative and graphic feedback of the patient's performance while he completes a treatment program. That is true for e.g. the Cybex and BTE, and the same potential exist for robotic systems. This adds to the potential for cost savings.

The opportunity for cost savings was one incentive behind our project. With demands from third party payors for increased contact time, and for performance improvement at lower cost and in shorter time, rehabilitation facilities must find innovative means for delivering quality therapeutic treatments without increasing staffs or budgets. Robots can contribute to greater efficiency, if one therapist can treat several patients at once. Even with minimal cost savings, a robotic system has possible advantages, including the capacity to count and to time patient activity in great detail, giving the possibility of producing objective and detailed reports of patient performance. The objective monitoring of patient progress, and the pinpointing of problem areas, will contribute to quality therapy.

System design and use in stroke treatment

Since stroke patients are a large part of the population in any rehabilitation setting, this group was selected for the initial study which focused on motor recovery. To implement movement patterns in the early stages of recovery after stroke, the therapist may move the affected upper extremity through a

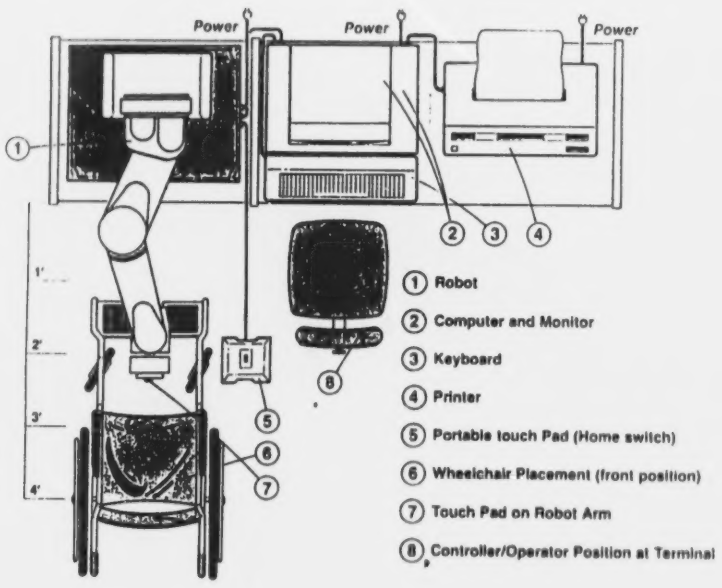

Figure 1. Components of robotic system

variety of therapeutic patterns. In later stages, therapist assistance is decreased as the patient begins to move his limb more independently. Movement patterns increase in complexity as the patient progresses. Activities to facilitate these movement patterns may include touching objects at specific points in space as directed by the therapist. The specific points vary in direction and height depending on individual needs.

The research team decided to develop a robotic system to simulate the OT providing upper extremity reeducation for stroke patients (Creighton, 1987; Kristy, 1988). The robotic arm exercise system (Figure 1) consists of the UMI, Inc. RTX robotic arm (1), an IBM-PC computer (2), printer (4), Robot Monitoring System (RMS), specially designed end-effector (7), and a "home" pad (5). The system computer controls the robot's movements. The RMS, actually a second computer system designed to fit in the IBM-PC computer, monitors and controls the end-effector and home switch sensors/indicators. The system's computer monitor displays exercise status information during the course of the exercise task. The printer provides a hard copy report for the therapist or patient. During a therapy session, the patient sits in a wheelchair (6) to touch the home pad (5) and the touch pad (7) on the robot's end-effector. To start the session, the patient touches the home switch to indicate that he/she is ready to begin. The robot arm then moves the end effector to a point in space and stops. An indicator light on the end-effector lights up, indicating that the patient should touch the corresponding pad. The patient touches the pad and the system responds by turning off the associated indicator light and turning on the home switch indicator light, signaling a return to the home switch.

Two modes are used. The Wait mode allows the patient to work at his/her own speed; the robot literally waits for the patient to respond by touching the end-effector before moving to the next point in space. The Pace mode requires the patient to work at one of four predetermined speeds, from relatively slow to relatively fast. This mode represents a greater challenge to the recovering patient's motor ability.

Many variations are possible to this basic theme. The end-effectors can be changed to carry one of a variety of touch pads, object receptacles, etc. Likewise, the home switch can be any one of a similar variety of sensors or touch pads. The key idea is that the patient is required to perform a given movement or task as prompted by the end-effector and home switch indicator lights. The system monitors the patient's responses, and

records data regarding timing, latencies, switch-to-switch movements, overall task time, etc.

For instance, we are currently working on an application in which a stroke patient in a more advanced stage of recovery is required to pick up an object from a delivery system, and insert it in the robot's gripper, which may be at a specified point in space, and have a specified orientation. The objects are selected to require various grips and pinches (lateral, spherical, etc.). On the drawing board are various applications for testing and treatment of upper extremity coordination problems, modelled on currently existing equipment e.g. inserting pegs, screwing nuts and bolts.

A study was conducted to determine whether the robot system developed for stroke movement therapy was safe for patient and therapist, and acceptable to both of them. Data on use of the system over a period of five months, with 11 therapists treating 22 patients, suggest that robotic arm use in treatment and evaluation is safe. We did not experience a single incident, nor did therapists express fears of accidents. All of the patients who completed a feedback form felt safe. Even though many of them were elderly, with a limited education, and cognitively compromised, they seemed intrigued by the system. Many expressed enjoyment working with it, and made other comments indicating that they accept receiving treatment from a machine.

Vocational assessment application

The Work Hardening program of Rehabilitation Institute became involved in this project to see if the system could be used in vocational assessment. Our question was: With this set up, can the vocational evaluator make various determinations about the physical capability of the individual being considered for a job (whether first-time entry or return after injury).
The hardware developed for the stroke movement pattern therapy was kept; however, we developed new software required to make determinations of interest to vocational evaluators, especially involving patients considering manual jobs. Specifically, with this new software the robot can perform:

- Anthropometric mapping: what is the size of the work envelope of the subject? Can the patient perform all movements necessary in the job?

This is determined by a program which moves the robot arm systematically through a 180 degree arc in front of the patient; The patient is required to touch the sensor at specific intervals. By plotting which points (at what heights and distances from the trunk) the patient can reach, the computer can provide a detailed quantitative overview of the work envelope.

- Endurance testing: what is the subject's capacity for repeated movements (near thetrunk, at the extremes of his/her work station, or traveling between these points), at high speed bursts substained over a longer time?

Capacity for repeated movements at high speed is determined by requiring the subject to do tapping; the system determines how many taps he accomplishes within a twenty-second interval. This is a modern version of a test that e.g. neurologists have used for many years. However, with the robot the touch pad can be automatically positioned at any point in space, whether near the trunk or at the extreme of the subject's work envelope. The program can also require taps alternating between home plate and end effector. If this same movememt is required at lower intensity but over a longer time period (e.g. 15 minutes), it is an excellent test of endurance for the repeated movements required in many industrial jobs, such as assembly.

Future potential

We foresee even more sophisticated uses of robotics in vocational evaluation. For instance, robots may be used to simulate assembly and other jobs: the robot could hand the subject a partially completed subassembly every 30 seconds; he is required to retrieve two parts from a bin and properly place them; he then hands the part back to the robot, which inspects the item. The advantage of a robot system is that many jobs can be simulated very flexibly, and the relevant parameters of job performance (speed, reach required, etc.) can be modified from the keyboard. The ability of the system to inspect, count and time only adds to its potential.

A second application might be in the custom design of work stations to fit the physical abilities (range of motion, strength, endurance, etc.) of return-to-work candidates, both in manual and white-collar occupations. "Where should the shelf with reference manuals be positioned so that the subject can retrieve and reshelf a three-pound volume at least three times an hour?" Answers to such questions can be obtained using computer intelligence, which would free up much time of the vocational evaluator.

These are just first steps toward the "employment" of robots in the field of vocational assessment. However, given the basic robotic capabilities available with current technology, the needs of the rehabilitation field, and the example of other technological developments (e.g.

the Cybex and other isometric exercise machines, and microcomputers as therapeutic and testing aids), we foresee a future fully developed robot rehabilitation aide that is characterized by a number of features, including the following:

- Multifunctional: using a variety of attachments, the system can be used with various diagnostic groups. Testing applications might include: measuring range of motion, endurance, strength, sitting balance, etc; assessing cognitive deficits like hemineglect and decreased attention span; anthropometric mapping; selection of adapted worksite equipment; job selection and environmental modifications.
- Easily customized programs, outputs and reports.
- Voice output for instructions and encouragement to patients.
- Input by means of voice and/or a touch-sensitive screen.
- Comprehensive reports (including graphic presentatation of information) on the results of a particular session; time trends and normal values can be displayed.

Discussion

The field trial of the current, limited vocational assessment application (anthropometric mapping, endurance testing) is in an early stage, and no systematic, quantitative data are available from this pilot or proof-of-concept study. However, based on the impressions of the investigators and other staff, the following may be offered as early conclusions:

- The system is safe to client and staff evaluator.
- Given the demensions of the RTX robot arm, realistic anthropometric mapping is not possible, without repositioning the subject several times. A longer arm that has a larger (WxDxH) envelope is necessary.
- A larger arm is also likely to have a higher "pay load", allowing for many tests of coordination and strength that are not possible with the current model. Many of these tests are necessary for comprehensive assessment.
- Further study is necessary to determine whether there are real benefits to using a robot system rather than simpler existing equipment that is available for evaluation. The capacity for repeated semi-independent action that makes a robot so useful for therapy applications is much less useful in evaluation applications.
- Clearly, a conclusion as to the utility of a robot system in vocational evaluation cannot be drawn until additional test have been implemented. While a system offering one or two tests may be of little value, a multifunctional system, especially if equipped with some artificial intelligence or expert system, offers better chances of being acceptable to vocational evaluators.

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CONSTRUCT AND CRITERION-RELATED VALIDITY OF THE MICROCOMPUTER EVALUATION SCREENING AND ASSESSMENT (MESA)

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Abstract

The aptitude scores produced by the Microcomputer Evaluation Screening and Assessment (MESA) were examined in terms of their construct and criterion-related validity. Construct validity was examined by comparing the aptitude scores of 29 displaced workers who had completed both the MESA and the General Aptitude Test Battery (GATB). Criterion-related validity was examined by comparing MESA aptitude scores with the Occupational Aptitude Pattern (OAP) multiple cut-off scores of 12 participants who had achieved tenure in their last occupation. Little evidence was found to support either the MESA's construct or criterion-related validity. Implications are briefly discussed.

A recent trend in rehabilitation settings is the growth of computer-based assessment (Burkhead & Sampson, 1985; Sampson, 1983). Rehabilitation facilities are increasingly using computer-based assessment systems and, as a result, vocational evaluators increasingly have client scores and other performance data available from computer-based assessment to facilitate client vocational choice and case service decisions. Since the advent of computer-based evaluation systems is recent, there is little data available regarding their measurement properties, particularly validity. Such information is needed to assist vocational evaluators in making appropriate inferences from the assessment data generated.

One of the most popular of the computer-based systems is the Microcomputer Evaluation Screening and Assessment (MESA) system (Fry, 1984; Valpar International, 1984). As indicated in its title, the MESA system is designed for evaluation and screening. Its stated purpose is "to assist in identifying those individuals who are job or training ready, those who are in need of remediation, or those who may need a more comprehensive assessment" (Valpar International, 1984, p. 67). The MESA system was introduced by the Valpar International Corporation in 1982 and, according to P. Rathstatter, Valpar National Sales Representative (personal communication, May 17, 1988), the system has been sold to more than 1,800 rehabilitation facilities, schools, private practitioners, and other rehabilitation-related facilities in the United States. Thus, a sizable number of vocational evaluators have access to and use the MESA system as part of their vocational evaluations.

Despite its widespread use, only limited research has examined the measurement properties of scores produced by the MESA system. The MESA manual (Valpar International, 1984) reports one reliability study with encouraging test-retest estimates over 4-week intervals for 22 subtest scores. Reliability coefficients varied from .79 to .96, with 16 of the 22 coefficients in the .90's. The MESA manual emphasizes the importance of content validity, and provides comprehensive analyses of Vocabulary, Spelling, and Math subtests in terms of frequencies of word usage and levels of difficulty relative to commonly used standardized achievement tests; however, little other data regarding validity are reported. In reviewing the MESA system, Botterbusch (1987) states that

> Validation presents a serious problem.... The two manuals contain no studies where the MESA was validated against outside criteria such as prediction of training or job success. In addition, given the

developer's emphasis on construct validity, no factor analysis results or correlations with other tests, work samples, etc. for the various subtests are reported (p. 73).

One brief account of "MESA Research Highlights" has been published in the "Valpar-Spective" newsletter (Valpar International, Fall 1985), and the results are said to indicate that "MESA is doing the job it was designed to do" (p. 6). The results reported, however, are sketchy and difficult to interpret as they relate to validity and appear to lend little support to that statement. What would appear to be the most encouraging finding was that "employed workers had 86% of their Worker Qualifications Profile Level scores equal to higher than the Worker Qualifications Profile requirements of their jobs" (p. 6); however, no further information is provided regarding the methodology or results of that study.

It appears that no other research has been conducted on the MESA system. In reviewing the system, Botterbusch (1987) cited no research other than that reported in the MESA manual. A computer search of the Psychological Abstracts, ERIC, and National Rehabilitation Information Center (NRIC) databases, as well as telephone contact with Valpar International Corporation, identified no additional research reports published on the MESA system. Thus, vocational evaluators who use assessment information from the MESA system in determining vocational potential, have very little empirical support for the relevance of that information for determinations and decisions to be made.

The purpose of the present study was to add to the limited data available regarding the validity of MESA aptitude scores. Construct validity was examined by comparing MESA aptitude scores attained by a sample of previously successful workers, who had since been "displaced" from their jobs, to their scores on General Aptitude Test Battery (GATB) aptitudes. In addition, criterion-related validity was assessed by examining the extent to which MESA aptitude scores would have met multiple cut-off criteria indicative of success in occupations in which the workers had, in fact, previously achieved successful job tenure.

Method

Participants

The sample was comprised of 29 individuals who were unemployed and participating in one of two programs for displaced workers sponsored by vocational-technical schools in the upper Midwest. Of the 29 participants, 19 (65.5%) were male, and ages ranged from 23 to 61 (M = 40.2, SD = 11.1). In terms of education completed, 28 (96.6%) had completed high school and 9 (31.0%) had completed some post-secondary training. All had been employed in their previous positions for at least one year (M = 4.6, SD = 2.3). Occupational categories represented by their immediately previous positions included clerical and sales (27.6%); machine trades (27.6%); professional, technical and managerial (17.2%); and benchwork, structural, processing or miscellaneous (27.6%).

Instrumentation

MESA system. As summarized by Botterbusch (1987), the MESA system is comprised of multiple subtests in each of nine major categories: (a) Hardware Screening; (b) Physical Capacities and Mobility Evaluation; (c) Vocational Interest Screening; (d) Vocational Awareness Screening; (e) Independent Perceptual Screening Assessment; (f) Talking-Persuasive Screening; (g) Working Conditions-Environmental Preference; and (i) Computer Screening Exercises (the final category is comprised of 13 exercises). All subtests combined yield 84 items of information which are designed to assess client characteristics related to vocational potential, with an emphasis on those identified in Worker Qualifications Profiles (WQPs) defined by the United States Department of Labor. Among the characteristics for which scores are derived are aptitudes, academic achievement, physical capacities, vocational interests, and vocational awareness.

Aptitude scores, the focus of the present study, include the 11 WQP aptitudes in the following areas: Intelligence or General Learning (G), Verbal (V), Numerical (N), Spatial (S), Form Perception (P), Clerical Perception (Q), Motor Coordination (K), Finger Dexterity (F), Manual Dexterity (M), Eye-Hand-Foot Coordination (E), and Color Discrimination (C). With the exception of the N, C, and E aptitude scores which are each based on only one MESA subtest, at least three subtests contribute to each of the remaining aptitude scores, with six or more subtests contributing to five of the scores.

Aptitude scores on the MESA correspond to the 1-to-5 WQP aptitude levels, ranging from the highest to lowest standing relative to the general population. However, since the MESA is not designed to assess the very highest and lowest aptitude levels, scores of "1" are collapsed with "2" and "5" with "4". The remaining scores of "2", "3", and "4" then indicate aptitude levels in the highest, middle, and lowest one-third of the population, respectively.

GATB. The first nine aptitudes assessed by the MESA system are also assessed by the General Aptitude Test Battery (GATB; United States Department of Labor, 1970), which was developed by the United States Employment Service more than 40 years ago (Dvorack, 1947). Droege (1983) and Pantaci, Droege, Ferral, and Hawk (1977) refer to the GATB as the best validated

aptitude test battery ever developed. Twelve subtests are used to derive nine aptitude scores -- G, V, N, S, P, Q, K, F, and M -- the first nine WQP aptitude patterns. GATB scores are reported as standard scores with a mean of 100 and standard deviation of 20; for purposes of the present study, aptitude scores were transformed to the 2-to-4 scale used for MESA aptitude scores, where 2 = 109 or higher GATB score, 3 = 92-108 GATB score, and 4 = 75-91 GATB score, corresponding to the highest, middle, and lowest one-thirds of the general population, respectively.

Results

Construct Validity

As a basis for assessment of construct validity, a nine by nine matrix was derived, providing Pearson product-moment correlation coefficients between scores on each of the nine aptitudes as measured by each of the two instruments (MESA and GATB). The resulting matrix is presented in Table 1.

The underlined matrix diagonal is comprised of the nine correlation coefficients between MESA and GATB scores on corresponding aptitudes. Validity coefficients ranged from -.08 (General Learning) to .44 (Verbal) ($\underline{M}$ = .25, $\underline{SD}$ = .12). Only three aptitude scores were found to be significantly correlated: Verbal ($r = .44$, $p \leq .01$), Spatial ($r = .43$, $p \leq .01$), and Form Perception ($r = .31$, $p \leq .05$).

Criterion-Related Validity

All participants were displaced workers. In other words, all had been successfully employed in the sense of sustained job tenure, but had lost their jobs through some circumstance beyond their control (e.g., company bankruptcy or cessation of operations; lay-offs necessitated by reductions in company sales or production). Criterion related validity was assessed by determining whether aptitude scores would have predicted success in those occupations in which participants had, in fact, been successful.

Occupational Aptitude Pattern (OAP) structure norms (U.S. Department of Labor, 1979) were consulted to identify OAPs corresponding to the last position held for each participant, and multiple cut-off criteria in terms of GATB aptitude scores were recorded for each. The corresponding OAPs could be clearly identified for the last positions held by 12 participants. In each case, the multiple cut-off scores for that OAP were transformed to the same 2-4 scale used for MESA scores and the GATB scores for each participant, were also transformed to that same scale.

The MESA aptitude scores were consistent with OAP multiple cut-off criteria, and thus were accurate in predicting success, for 5 of 12 participants (42.7%), while the GATB aptitude scores were accurate in predicting success for 7 of the 12 (58.3%). No significant differences were found between the two proportions, chi square (1, $\underline{N}$ = 12) = 0.67, $p > .05$, and neither the MESA nor the GATB scores appeared to achieve an impressive degree of accuracy in predicting occupational success with this sample.

Discussion

The results of the present study failed to support the validity of the MESA aptitude scores as indicators of vocational potential. Six of the nine MESA aptitude scores failed to show significant correlations with corresponding GATB scores. Even the highest validity coefficient found (Verbal, $r = .44$) was lower than correlations between subtests which supposedly measured differing aptitudes (i.e., MESA Finger Dexterity with GATB Form Perception, $r = .49$; MESA Finger Dexterity with GATB Spatial, $r = .48$).

It should be noted that the interpretation of these correlation coefficients should be somewhat guarded because of the relatively small number of participants ($n = 29$) and the restricted range of the scores (2-4) used for the correlation analysis. These two limitations tend to restrict variability among participants; hence, reaching statistical significance is less likely. The former limitation was due to the unavailability of individuals having completed both the MESA and the GATB. The latter was an inherent problem with the MESA and the restricted nature of the scoring scheme employed.

Little evidence was found to support the MESA's criterion-related validity as well. The MESA aptitude scores were consistent with OAP multiple cut-off criteria, and thus were accurate in predicting success, for 5 of 12 participants, while the GATB aptitude scores were accurate in predicting success for 7 of the 12. No significant differences were found between the two proportions and neither the MESA nor the GATB scores appeared to achieve an impressive degree of accuracy in predicting occupational success with this sample.

The small number of participants employed in the criterion-related analysis ($n = 12$) resulted from the author's caution, using only those subjects whose last occupation could be clearly classified using the OAP structure norms. Again, the small number of participants qualifies the results somewhat.

The MESA has been criticized by users for producing scores that tend to be lower than scores produced by tests intended to measure corresponding attributes. In responding to these criticisms, the developers have stated,

> Valpar feels that too much emphasis is placed on the differences between scores obtained on different tests which are intended to measure the same factor. At the same time too much emphasis is placed

on the correlation of these tests... validity measures of this sort have always had been 'circular' in nature, and, very often the 'circle' can be unproductive" (Valpar International, 1984, pp. 210-211).

The developers of the MESA system have discounted the importance of correlations of MESA scores with other instruments designed to assess corresponding constructs, in favor of sole reliance on content validity and intercorrelations among MESA scores to support construct validity. They suggest that the MESA system is criterion-referenced rather than norm-referenced and, thus, correlations with other measures are unimportant or even irrelevant. Interestingly, neither the MESA's construct nor criterion-related validity were supported by the present study.

Whether or not aptitude measures designed to relate to the entire world of work can truly be criterion-related measures would seem open to question; even Valpar International (1984) states that MESA is "both criterion-referenced and norm-referenced". However, a number of authorities have stressed the importance in going beyond content in assessing the validity of criterion-referenced tests (e.g., Berk, 1984, Cronbach, 1971; Hambleton, 1984; Linn, 1980; Messick, 1975). In his thorough review on methods to validate criterion-referenced scores, Hambleton (1984) specifically recommends investigating correlations between criterion-referenced test scores with other measures. Intuitively, an individual who scores higher than another individual on a criterion-referenced measure of some aptitude, say verbal ability, that individual would also be expected to score higher on another norm-reference measure of the same construct, if that construct indeed measures verbal ability.

In conclusion, it appears that with displaced workers, the MESA aptitude subtests may not measure the same constructs as the GATB. Therefore, their scores should not be regarded as equivalent. Further, little evidence was found to support the MESA's criterion-related validity when the criteria of interest are WQP aptitudes required for success in selected occupations. Thus, vocational evaluators who use assessment information from the MESA system in determining vocational potential, still have very little empirical support for the relevance of that information for determinations and decisions to be made.

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Table 1

Correlations Between MESA Aptitude and GATB Scores

	GATB Scores								
MESA Scores	G	V	N	S	P	Q	K	F	M
G (General)	-.08	.01	-.09	-.04	-.05	.19	-.05	.07	.06
V (Verbal)	.22	.44*	.16	.11	-.01	.33*	-.09	.00	-.09
N (Numerical)	.16	.15	.21	.06	-.19	-.01	-.14	-.12	-.04
S (Spatial)	.18	.02	.01	.49**	.35*	.03	.24	.19	.03
P (Form Prcpt)	-.14	-.28	-.21	.28	.31*	.24	.02	.31*	.09
Q (Clerical)	.38*	.22	.41**	.43**	.23	.33	.09	.07	.14
K (Motor)	.26	.09	.29	.43**	.36*	.12	.17	.21	.23
F (Finger Dex.)	.16	-.07	.15	.45**	.49**	.06	.29	.29	.26
M (Manual Dex.)	.18	-.00	.24	.26	.19	-.05	.08	.18	.11

*$p \leq .05$. **$p \leq .01$.

$n = 29$.

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An Analysis of Private Sector Rehabilitation Case Managers' Opinions Regarding Work Hardening and Work Capacity Evaluation Programs

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ABSTRACT

Rehabilitation case managers provide an invaluable service to workers' compensation claims adjusters. Through efforts of rehabilitation case managers, claims adjusters are able to determine appropriate medical and rehabilitation service delivery. This consulting influence over claims adjusters suggests that rehabilitation case managers have the potential to be major referral sources for work hardening programs. However, market trends suggest these rehabilitation professionals do not refer a significant number of their assigned clients to work hardening programs. This study assessed the opinions of private rehabilitation case managers regarding work hardening programs, and attempted to provide some insight regarding their program referral trends. The results indicated that rehabilitation case managers consider themselves to be knowledgeable and supportive of work hardening programs. The inconsistency of their perceived support and actual referral trends is explored, and further research areas are suggested.

Private sector rehabilitation case managers have established themselves as invaluable resources to insurance adjusters monitoring workers' compensation disability claims. Case managers are assigned the responsibility of providing direction to the injured worker for attainment of industrial rehabilitation goals while keeping the cost containment interests of the insurance community in the forefront. In his studies on the roles and functions of private sector case managers, Matkin (1982; 1985a; 1985b;) noted the primary role of case managers who listed membership in the National Association of Rehabilitation Professionals in the Private Sector (NARPS) to be that of planning and coordinating client services. This stands to reason since a primary revenue source for case managers is the workers' compensation benefit provider. This particular role category listed sub-categories which are noted as follows:

1. Client orientation and service planning.
2. Resource identification and referral.
3. Service coordinating.
4. Gathering and synthesizing information.
5. Guidance and counseling.
6. Dissemination of information (p. 8).

The sub-category function of identifying resources and referring clients to allied health service providers suggests that case mangers can play a significant role in the referral process for work hardening and work capacity evaluation programs. Work hardening and work capacity evaluation programs specialize in evaluating and treating injured workers for musculoskeletal deficits and pain behavior dysfunction (May, 1985; May, 1986a; May, 1986b; May, 1987; May, 1988a; May, 1988b; May, Stuart, & Barnes, 1986). Increased competition among physicians in private practice and hospitals expanding into day rehabilitation programs has forced work hardening program administrators to design sophisticated marketing programs to attract referrals (May, 1986a; 1986b). Private sector case managers are a primary market consideration due to their close ties with insurance claims adjusters who monitor industrial claims. However, the author has noted little direct support from insurance claims adjusters or rehabilitation case managers, and has relied almost exclusively on physicians to refer industrially injured workers for evaluation and treatment.

The purpose of this study was to determine referral trends of private sector rehabilitation case mangers to work hardening and work capacity evaluation programs. Additionally, the study was designed to explore the opinions of case managers regarding the efficacy of work hardening programs. Several research questions were targeted and include the following:

1. Are case managers knowledgeable regarding the work hardening program concept and purpose?
2. Overall, do case managers support work hardening programs?
3. Do case managers consider the work hardening report when determining vocational objectives and case management direction?

Method

Sample Selection

Rehabilitation case managers residing in Virginia and providing services in the private-for-profit sector were chosen to participate in the study. A list was compiled using the Yellow Pages phone directories of Northern Virginia, Richmond, and Tidewater regions. Phone calls were made to companies and private proprietary rehabilitation specialists to obtain specific names of employees so that the instruments would be sent to specific recipients.

Demographic statistics of the group revealed that over 50% did not hold any form of licensure or certification, while 50% of that population held one certification, 34% held 2 certifications, and 8% held three certifications. The typical case load size was between 11 and 20 clients, and most of the respondents worked either for a national corporation (30%) or were in private practice (30%). Insurance company subsidiaries held employment for 20% of the participants.

Instrument Development

The survey questionnaire was developed with the assistance of two rehabilitation case managers currently practicing in Richmond, and a staff member of The Rehab Clinic of Richmond who previously supervised staff for a southeast private rehabilitation firm. The task force compiled two statement lists, and met to discuss the inclusion and deletion of questionnaire items. A final survey questionnaire was chosen after agreement was obtained on all statement items. (Available from the author upon request)

Data Collecting Procedures

Before the questionnaires were mailed, all persons and their supervisors were contacted to obtain their permission as well as commitment to participate in the study. A total of 167 survey questionnaires were mailed. Each recipient was asked to rate his or her agreement level regarding the 22 questionnaire statements and the demographic form. A 5-point Likert-type scale was used, which ranged from strongly agree (1) to strongly disagree (5). Each survey questionnaire was mailed with a cover letter explaining the purpose of the research, and with a self addressed stamped envelope for the individual to return the completed questionnaire. The 22 statement items the sample population responded to are presented in Figure 1.

Figure 1
Questionnaire Opinion Statement Items

1. There is a need for work capacity evaluations
2. I prefer an assessment clinic over one that treats.
3. I have a clear understanding of work hardening
4. There is a need for work hardening programs
5. I refer often to work hardening programs
6. Verbal instructions from the adjuster influences my case management direction
7. I suggest specific facilities to physicians
8. The physician decides which facility to use
9. I suggest specific programs to adjusters
10. Insurance adjusters support work hardening
11. I would include work hardening as part of my practice
12. I understand the report contents
13. The report length is satisfactory
14. The report turn-around-time is satisfactory
15. I prefer a shorter, 3-5 page report with summary information only
16. The report is useful for determining vocational goals
17. The report information is used to obtain guidelines for case management
18. I favor exit conferences
19. I favor open communication by the facility to all persons involved in the case
20. I favor programs that allow the counselor to provide the rehabilitation direction
21. I favor programs that allow me direct access to the treatment and evaluation therapists
22. Work hardening programs enhance case resolution

Follow-Up Procedures

After two weeks had elapsed from the initial mailing, follow-up phone calls were made to case managers who had not responded to the survey in an attempt to encourage them to submit their questionnaires. A total of 78 (41%) questionnaires were returned and all were suitable for the data analysis.

Statistical Analysis

Simple descriptive statistics (means, standard deviations, and maximum/minimum coefficients) were used, and Pearson Product Moment Correlation coefficients were applied to determine any significant trends among the rated statements. The statistical analysis was accomplished by using the SYSTAT PC statistical analysis package which emulates SAS (Statistical Analysis Systems) procedures. A Compac III portable computer which contained a 20 megabyte hard drive, 640 Kbytes of RAM on the mother board, and a 12-MHz 80286 microprocessor was used to run the program.

Results and Discussion

Results

A total of 78 (41%) survey forms were returned of which all 78 surveys were considered

acceptable for the analysis. The data results are reported in Table 1.

Table 1
Means and standard Deviations of Respondent Ratings to the 22 Survey Items (n=78)

Statement #	Mean	Standard Deviation	Minimum	Maximum
1	1.85	0.773	1.00	4.00
2	1.75	0.710	1.00	4.00
3	2.00	0.684	1.00	4.00
4	1.74	0.874	1.00	5.00
5	2.55	1.052	1.00	5.00
6	2.34	0.776	1.00	4.00
7	2.09	0.846	1.00	5.00
8	3.03	0.895	1.00	5.00
9	1.97	0.726	1.00	5.00
10	2.66	0.920	1.00	5.00
11	2.29	0.762	1.00	4.00
12	2.24	0.809	1.00	4.00
13	2.55	0.769	1.00	5.00
14	2.77	0.912	1.00	5.00
15	2.36	0.857	1.00	4.00
16	2.01	0.712	1.00	4.00
17	1.91	0.648	1.00	4.00
18	1.82	0.716	1.00	4.00
19	1.74	0.763	1.00	4.00
20	2.07	0.879	1.00	4.00
21	1.79	0.745	1.00	4.00
22	1.88	0.821	1.00	4.00

Inspection of the above data suggests that the respondents were mostly agreeable with the 22 items. However, some subtle differences can be extrapolated upon closer inspection. For example, the participants feel there is a need for work hardening programs (Statement #1), and also feel they would prefer an assessment clinic over one which only treats (Statement #2). However, it appears that the participants may not be so bold as to suggest to a physician a work hardening program that the respective case manager prefers (Statement #8). Other statements that scored a low agreement opinion included statements 13 (length of report is satisfactory), 14 (report turn-around time is appropriate), 5 (counselor often refers clients to work hardening), and 10 (the adjuster supports counselor recommendations for work hardening.

The Pearson Product-Moment Correlation coefficient was used to determine any relationships or trends in the data. Specifically, it demonstrated correlations among several of the statements which provides a better overview of the sample population's attitudes. The confidence interval was established at .01, and with the small sample size of 78, a large correlation coefficient was necessary in order to achieve significance (Skinner, 1984). Given these constraints, a correlation coefficient of .36 was established as the criterion for significance.

The statement item with the most significant correlations was statement item #1 - "There is a need for work capacity evaluation programs". Statement items which correlated significantly with with statement item #1 included statements 4 - "There is a need for work hardening", 5 - "I refer often to work hardening programs", 8 - "The physician decides which facility to use, 9 - "I suggest specific programs to adjusters", 11 - "I would include work hardening as part of my practice", 16 - "The report is useful for determining vocational goals", 17 - "The report information is used to obtain guidelines for case management", 18 - "I favor exit conferences", and 22 - "Work hardening programs enhance case resolution". Case managers who rated statement item #5 - "I refer often to work hardening programs" as agree or strongly agree also rated statement items 9 - "I suggest specific programs to adjusters", 11 - "I would support work hardening as part of my practice", 16 - "The report is useful for determining vocational goals", and 17 - "The report information is used to obtain guidelines for case management" at similar levels.

Case managers who rated statement item #2 - "I prefer an assessment clinic over one that treats" as agree or strongly agree also rated the following items in similar fashion:

a) #4 - "There is a need for work hardening programs".

b) #5 - "I refer often to work hardening programs".

c) #7 - "I suggest specific facilities to physicians".

d) #17 - "The report information is used to obtain guidelines for case management".

Statement item #3 - "I have a clear understanding of work hardening" showed significant correlations with statement items #17 - "The report information is used to obtain guidelines for case management" and 20 - "I favor programs that allow the counselor to provide the rehabilitation direction".

The statement item #7 - "I suggest specific facilities to physicians" which was rated as agreed to or strongly agreed to was significantly correlations with statement items #9 - "I suggest specific programs to adjusters", 15 - "I prefer a shorter, 3-5 page report with

summary information only", 16 - "The report is useful for determining vocational goals", and 18 - "I favor exit conferences".

Case managers who agreed to or strongly agreed to statement item #16 - "The report is useful for determining vocational goals" also marked statement items #17 - "The report information is used to obtain guidelines for case management", 18 - "I favor exit conferences", and 21 - "I favor programs that allow me direct access to the treatment and evaluation therapists" similarly.

The correlations to the controversial statement item # 6 - "Verbal instructions from the adjuster influences my case management direction" included statement items #9 - "I suggest specific programs to adjusters", 16 - "The report is useful for determining vocational goals", 18 - "I favor exit conferences", and 21 - "I favor programs that allow me direct access to the treatment and evaluation therapists".

Finally, counselors who agreed with statement item #9 - "I suggest specific programs to adjusters" also produced similar ratings in statement items #10 - "Insurance adjusters support work hardening", 16 - "The report is useful for determining vocational goals", 18 - "I favor exit conferences, and 19 - "I favor open communication by the facility to all persons involved in the case".

Discussion

The data results are consistent with Matkin's (1982; 1985a; 1985b) findings of private sector rehabilitation case managers' roles and functions in industrial rehabilitation. It is obvious that case managers who responded to this survey consider planning and coordinating activities to be a major responsibility. This is confirmed by the high agree and strongly agree ratings on statement items 16 and 17. Counselors use program summary reports when clients have completed work hardening to establish vocational goals and direction. They indicated that these reports are utilized to plan and coordinate the clients rehabilitation plan by establishing vocational goals and direction. Thus, reports assist case managers who utilize work hardening programs to better inform the insurance adjuster regarding the rehabilitation potential of the claimant.

It is interesting to note that case managers who see a need for work capacity evaluation programs also see a need for work hardening programs and refer regularly to work hardening programs. This is consistent with work hardening models established by May (1985; 1988a; 1988b). The key to May's work hardening model is the integration of an evaluation component, whether it be a full work capacity evaluation utilizing the physical and occupational therapist team, or a comprehensive vocational evaluation. Matheson (1988) further cited May's work hardening model as somewhat unique in that it included a vocational evaluation component as well as the standard treatment regime. Thus, case managers who refer to work hardening programs usually expect the standard work capacity evaluation, and therefore associate the two entities as work hardening.

Case managers who suggest to physicians where they would like to have the client receive work hardening services when the physician indicates work hardening is neccessary also suggest their preferences to adjusters. These case managers appear to know how to maximize their exposure to these programs. They prefer the shorter report format over the comprehensive "raw performance data" report, use it to determine vocational goals, and prefer to have a team meeting (exit conference) at the end of the client's program.

There were a significant number of case managers who agreed or strongly agreed that insurance adjusters influenced their case management strategies. This suggests possible case management biases toward the insurance referral source. These case managers favor becoming involved in the work hardening program through direct access to the therapy team and participating in exit conferences. It is also noted that these case managers recommend specific program facilities to adjusters. Perhaps the programs they recommend are the ones which have tendencies to bias report summaries in favor of the referral sources. Further research is recommended to further qualify these assumptions.

It should be noted that a significant agree or strongly agree rating was recorded for statement items #1 - "There is a strong need for work capacity evaluations" and #4 - "There is a need of work hardening". However, statement item #5 - "I refer often to work hardening programs" registered a low agree rating, suggesting that case managers may not readily refer to work hardening programs. The author's 6 year experience with work hardening program referral resources indicate that physicians and attorneys are the main supporters of these programs. Insurance adjusters rarely make direct referral to these programs for fear of encroaching on the physician's territory. Similarly, case managers refer, but not without the encouragement of the physician and the support of the insurance adjuster. This may be because of several factors. First, case managers collect revenues based on actual billable time spent working a particular case. If the client is enrolled in a work hardening program instead of a placement or medical management program, the case manager/client exposure and billable time are greatly reduced. Secondly, there may be a competitive fear on the part of the case manager that such programs can determine dysfunctional issues they may have overlooked or not considered. Thus, there is the potential for the referral source to depend more on the work hardening team for direction rather than on the contracted case manager.

Qualitative Nature of the Study

Attention should be given to the qualitative nature of this study. The purpose was to ascertain the opinions of private sector rehabilitation professionals in Virginia regarding work hardening program utilization. Data regarding rehabilitation professionals' opinions of work hardening programs are nonexistent in the literature. Therefore, there

was little to draw reference when assessing the scope of qualitative measures.

A qualitative inquiry is a particularly desirable research method to use for this type of study. However, enhancement of quality can only be reassured with the cooperation of those who were surveyed. The response rate is somewhat low, and generalization to the population in Virginia may not be justifiable. More specifically, this study surveyed only case managers residing in Virginia. Generalizing to the main population of rehabilitation case managers in the private sector is undeniably unjustifiable.

Finally, the use of Pearsons' Product Moment Correlation Coefficients may be potentially misleading at best. Skinner (1984) noted possible inflated percentage of variance ranges with small sample sizes, suggesting a high rate of error when determining significance among coefficients.

Summary and Conclusions

The rehabilitation case managers who responded to this survey are knowledgeable and supportive of work hardening programs. Case managers utilizing work hardening programs become involved in the total process. They support the use of exit conferences, desire to have access to the therapy team, and understand and use the reports in determining vocational goals and rehabilitation direction. It was suggested, however, that case managers do not refer as often as they could. This may be due to financial and competitive concerns. However, work hardening programs will continue to focus on their primary mission (i.e., to prepare the injured worker for work) and leave the case management services to the private sector rehabilitation professionals. To offer such services would only jeopardize or eliminate a potentially significant support system.

Work hardening programs are emphasizing marketing plan development as competition increases among the private physical and occupational therapy practitioners, physicians, and hospitals. Program administrators need to target rehabilitation case managers as potential referral sources because these professionals provide case management direction for the workers' compensation claims adjuster. With rehabilitation case managers' support, the workers' compensation industry will openly support work hardening programs.

Research is needed to further analyze the opinions of the private rehabilitation case managers regarding work hardening program utilization. A review of the literature indicated that there is a void of research addressing private sector case managers' utilization preferences of work hardening programs. The data in this study requires further analyses regarding demographic factors which may predict work hardening referral patterns of rehabilitation case managers. Expansion of this survey to a national study is also encouraged so that work hardening programs can be better informed as to how to meet the needs of the rehabilitation case manager.

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A CRITIQUE OF THE MENCHETTI-RUSCH V.A.C.G. VALIDATION AS STUDIED BY PSYCHOMETRIC PROPERTIES

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ABSTRACT

This is a critique of an investigation into the reliability and validity of the Vocational Assessment and Curriculum Guide, better known as the V.A.C.G., which attempts to fill a need to diagnose areas of focus for vocational training. Problems of statistical methodology, item construction, small numbers, and rater bias are investigated and discussed for future improvement. The actual validity is found to be unsupported by statistically significant data at this time. Possibly with improvements to develop reliability, validity can be correctly tested. Strong suggestions are made to shift from Empirical model to a Construct Validity model for more meaning and theory development.

This paper is a critique of a Menchetti&Rusch(1986a) investigation of the validity of the the "Vocational Assessment and Curriculum Guide" (V.A.C.G.), a widely recommended rating scale for rating mentally retarded clients' work status (Rusch,Schutz,Mithaug,Stevart,Mar,1982). An analysis of the reliability investigation, which was also done, raises some questions which are also examined because validity is not demonstrable without reliability.

The empirical[1] investigation was to determine "if the V.A.C.G. could differentiate between groups of individuals with various levels of work experience...then the individual's score on the instrument should be related to a specified level of work performance" and "be useful in the specification of instructional objectives" (Menchetti & Rusch,1986a). When a vocationally defective function is identified, it is apparently assumed to be modifiable through environmental curricula that are not specified beyond "worker should received training on these items." It is not clear if "training" is interpreted to include non-direct interventions for vocational dysfunctions based upon defective social behaviors and/or poor self-concepts[2], etc. where direct interventions have not succeeded. An example of non-direct interventions to improve a client's phenomenological perception of his "world" could be psychotherapeutic contact, including family therapy for environmental modification.

Background of the test instrument

Menchetti & Rusch(1986b) state that literature areas selected for search in the past have found not identified "specific training needs." The V.A.C.G. was derived from employer-recommended work-related items (Mithaug & Hagmeier,1978) to supplement this void by emphasizing "measurement of actual skills required for employment," an "ecological analysis" approach[3].

The research test instrument

The V.A.C.G. items are directly observable functions requiring some supervisor judgement. Most V.A.C.G.item ratings are not refined enough to produce the diagnostic information required for comprehensive intervention planning for unsuccessful clients.

The copyrighted V.A.C.G.(Rusch,Schutz,Mithaug,Stevart,&Mar,

1. The authors extol the "empirical model" in a companion article (Menchetti&Rusch,1986b): "...Research of this kind signals a return to the rigorous scientific regimen of test development and validation suggested by pioneers in the field such as R.L.Thorndike(1949). Renewed emphasis upon empiricism will enhance the field of vocational evaluation..."(emphasis reviewer's). No mention is made of R.L.Thorndike's (1971,1977) later advocacy of the Cronbach(1955) Construct Validity model: "Sometimes we ask, with respect to a psychological test, neither 'How well does this test predict job success?'...but rather 'What do scores on this test mean or signify?' 'What does the score tell us about this individual? Does it correspond to some meaningful trait or construct that will help us understand him?'..." (1977,P.70).

2. This particularly applies to adequately skilled clients when are operationally defined as "Mentally Retarded" by state Depts. of Mental Health when the client has failed to cooperate in psychometric testing and the possible role of their emotional instability is unassessed.

3. Dr. Urie Bronfenbrenner, the founder of Human Ecology, specifies (1979) that it include phenomenological variables.

1982) items are grouped into ten domains. The researched instrument deals with only 8 of these 10 domains, eliminating Academic Skills. Further, three of the researched domains[4] have different numbers of items than the copyrighted instrument. No discussion is presented of the item changes from the 1982 version.

Item selection and standardization are critical to reliability and validity studies. Reliability is affected by item construction to enhance clarity and objectivity for the best rater test-retest replication and for inter-rater agreement. Validity is also influenced by how broadly the items sample across the relevant dimensions and weight them. In this study, two Domains show evidence of faulty construction with a biasing ceiling effect. (1) The Independence Domain has a score range from 0 to 17. The overall mean for all groups is 15.95 suggests a ceiling, and the SD=3.83 confirms it; the S.D. is otherwise meaningless. (2) The Communication Domain has a score range from 0 to 28. The DISABLED SUCCESS group achieved a Mean= 28.0 on re-test, SD=4.55. An SD= 4.55 where no variance exists is an error; it must be SD=0 by definition.

Test-retest item reliability procedures were reported done, but no values are given; only the Domain item-cluster totals are given for each study group. All the test-retest coefficients (Domain item-clusters by each subject group) were high and positive except for Attendance/endurance (DISABLED-SUCCESS), which was high but negative (-.69)!

Split-half reliabilities were all significant, but the Attendance/endurance Domain was suspiciously lower (.588) than the next lowest, and accounted for only half the variance that the average coefficients of equivalence did on other Domains.

Interrater reliability had some potential complications: (1) Only 2 (job coaches) rated only 6 clients on a mobile janitorial crew. To generalize from these small---and possibly homogeneous---samples to all "prospective users..including workshop supervisors, workshop trainers,...and job supervisors in the competitive employment setting" or a wide range of client types, requires population comparisons, which were not presented. (2) The statistic used for "inter-observer agreement percentage" was unique but probably incorrect. No references were given. It is discussed in the statistical methods section.

Subject groups

This study was designed to investigate validity by comparing four different groups: Group A-SHELTERED/WORK ACTIVITY; Group B-DISABLED FAILED/WORK ADJUSTMENT; Group C-DISABLED SUCCESSFUL; and Group D-NONDISABLED SUCCESSFUL. The ages ranged from 18 to 57 with "approximately equal" numbers of males and females. Some of the mentally retarded (Groups A,B,&C) displayed vocationally important "secondary handicapping conditions," but their impact on validity was not analyzed to control for potential bias.

The groups were differentiated as follows: the first three (Groups A,B,C) had "severe to moderate mental retardation" (IQs below 55). The Group A-SHELTERED/WORK ACTIVITY subjects had not been exposed to competitive employment. The last 3 groups (B,C,D) had all been "competitively employed" in service occupations. Vocational failure was defined as having "been fired"; success was defined as "working...for periods longer than six months." Group C-DISABLED SUCCESSFUL were noted as follows: "All of these individuals (Group C) had...participated in a competitive employment training program.." Group D-NONDISABLED SUCCESSFUL was selected to provide contrast with disabled employment in service occupations; they did not exhibit or report any 'disability' (no emotional nor secondary physical/communication problems) and were rated as "average" in employers' "work performance" expectations.

Reliability was studied on only the three client groups, using slightly different client numbers so small disparities occurred in the group means. Apparently most clients were used in both reliability and validity phases, though one group varied 23%.

It is presumed that basic experimental objectivity was satisfied by randomly assigning clients to Group A vs. employment opportunity (B and C) to avoid any contaminating selection bias. That this may not have been so, could be inferred from the following points: (1) it was never specifically stated in the methodology; (2) the "majority" of Group B-DISABLED FAILED/WORK ADJUSTMENT were re-assigned to "work adjustment" and not "work activity", where the "majority" of Group A-SHELTERED/WORK ACTIVITY found themselves; and (3) "raters...may have inflated their (Group 2-DISABLED FAILED/WORK ADJUSTMENT) ratings because of the perception that these individuals were high functioning"(emphasis reviewer's).

Statistical comment

A caution regards the use of parametric procedures. Standard convention requires at least the possibility of a theoretically normal distribution before parametric correlation and difference statistics can be used. However, working with selected sub-sets of the normal population, particularly extreme ones like the intellectually sub-normal where we are dealing with "tailed distributions", we can know that it is not normally distributed. Non-parametric statistics may be the best alternative. Where parametric procedures are still considered, statistics for skewness and kurtosis must be calculated. These results are not available.

It is also unacceptable to use parametric statistics---where justified---with small population numbers. Group C-DISABLED SUCCESS, a critical one, had only 17 Ss for the test-retest reliability correlations, apparently Pearson rho. Conventional rule of thumb suggests N>30.

Where F-test distributions are considered appropriate, modern statistics (Frank,1974) offer critical tables to determine population size to avoid making a Type 1 or Type 2 error in accepting or rejecting the null hypotheses.

The questionable statistic used on interrater agreement is described as follows: To determine the interrater agreement of a Domain, the percent agreement on each item within that Domain is calculated, and then the "percentage of inter-observer agreement [on the total Domain] was determined by dividing the lower score by the higher score." The question that arises can best be illustrated by the following example: If all of Domain I's item-agreement percentages ranged from 10% to 12%, then 10% would appear to be divided by 12% to give the answer of "83% agreement." However, since none of the items achieved over 12% agreement, it is difficult to see how any group descripter (mean,median, mode,etc.) could inflate to over 88%.

Results: Reliability

Though a lengthy attempt is made in this Menchetti&Rusch study(1986a) to interpret statistically random results to support their hope for reliability[5], rigorous science of any orientation must reject this effort on the basis of the data offerred in this study. More care in the scale items construction and the mathematics would eliminate random error, and allow for a clearer test of the issue. This conclusion of unproven reliability should be generalized to the copyrighted V.A.C.G. version, as no distinction between it and the researched version was advanced.

4. Production Domains: 7 (1982 version) vs. 8 (experimental); Behavior Domains: 9 vs. 8; Production Domains: 7 vs. 5.

5. Using terms such as "suggests" and "tend to" to legitimize statistical randomness operates more to obscure than clarify the true statistics.

A limitation in this study is in the interrater 'agreement' reliability on the V.A.C.G. scale. First, using the questionable statistic, they conclude they have established 'reliability' on the generalization from 2 job coaches rating 6 similarly employed clients. However in post facto speculation concerning a high rating score (Indep.Domain,Group C), they discover an empirical distribution of scores that is unacceptable; the authors then feel it 'may be an artifact of rater bias, because many subjects in the high group were rated by their trainers, who have a vested interest in their success..'(reviewer's italics). Finally, the author's summarize, 'The data presented here suggested that, in terms of interrater agreement, the VACG provides a highly reliable measure of the vocational and social skills...'

GROUP: / DOMAIN	SHELTERED /WORK ACTV(A) n= 59	DISABLED-FAILED(B) n= 26	DISABLED-SUCCESS(C) n= 15	NON-DISABLED SUCCESS(D) n= 27
Independ. /Domain	19		+18.9[A,D]	
		+16.5		+16.0[BC]
	14	+14.4[BC]		
Production Domain	12			+11.4[A]
		+ 9.8[A]	+10.9[A]	
	4	+ 4.9[B,C,D]		
Learning Domain	10			
		+ 9.7		+ 9.7
			+ 8.2	
	7	+ 7.3		
Behavior Domain	20		+19.7[A]	
		+17.0		+17.7
	13	+11.2[BC]		
Communic. Skills Domain	31			+30.5[A]
		+26.4[A]	+27.6[A]	
	16	+16.8[B,C,D]		
Social Skills Domain	4			
		+ 3.5[A]	+ 3.7[A]	+ 3.6[A]
	2	+ 2.5[B,C,D]		
Self-Help Domain	7			+ 6.9[A]
			+ 6.3[A]	
		+ 5.0		
	4	+ 4.9[C,D]		

FIGURE 1. Group mean score distributions for each Domain, Validity study (HeachettiRusch,1986a). Difference statistic used is the Tukey's Honestly Significant Difference Test. Asterisks indicate .05 level of significant differences; superscripts indicate interacting group(s).
Note: Unasterisked numbers indicate that though these group means may differ on that Domain, the difference is random.

The deviant (-.69) test-retest coefficient for the Attendance/endurance Domain in the DISABLED-SUCCESS group is briefly noted in passing without discussion. However, to maintain statistically 'clean' experimental design, conservative convention requires elimination of any scale components with negative test-retest coefficients(Cronbach,1954). Thus, in the interest of 'rigorous scientific regimen of test development', it is not possible to justify the inclusion of the Attendance/endurance Domain items in this form and they must be modified for any future consideration. (This also strengthens the split-half statistics as this Domain was the questionable element there, probably for the same reason.) Such action enhances objectivity.

Results: Validity

FIGURE 1 presents the distribution of group means for each domain with the significant group interactions noted.

By operational definition, validity can not be demonstrated by unreliable instruments. Since reliability was not demonstrated in the first phase of this study, the validity question is not yet resolvable. The remainder of this critique allows the HeachettiRusch study's (1986a) incorrect assumption that the reliability issue was resolved favorably to continue the validity review.

The raters investigated were 'prospective users of the VACG including workshop supervisors, workshop trainers, job coaches, and job supervisors in the competitive employment setting.' After speculating that 'rater biases' led to unexpected results, the study does not accept that a serious invalidity has entered the rater-scale-client application at some vulnerable point.

HeachettiRusch(1986a) summarize their findings extensively with an (non-empirical) rationale based upon finding importance in statistically insignificant mean differences; however, a 'rigorous scientific test regimen' requires rejecting statistically insignificant associations even with Empiricism. (If one wishes to develop a system of hypothetical constructs, then one is leaving Empiricism for Construct Validity methodology, but it must be done before data gathering to maintain 'rigorous scientific' objectivity.)

Their critical validity issues can be empirically expressed: (1) Do differences exist between the 4 groups? (2) Are they (systematically?) related in any way (a) that 'the individual's score on the instrument should be related to a specified level of work performance'?, and (b) 'to be useful in the specification of instructional objectives for persons with handicaps'? (It could follow that (a) might be true, but (b) not useful if, for instance, the V.A.C.G. scores turned out to be inversely related to employability.)

Heachetti & Rusch (1986a) conclude:
(1) FIGURE 1 demonstrates all statistically significant and insignificant differences that occurred. The Learning Domain was the only Domain to have an statistically significant difference between any of the groups. COMMENT: The consistent difference was between Group 1 and the others as a block.
(2a) 'The pattern of the difference between groups suggests that subjects with less restrictive work placements who have successful competitive employment experience lead to score higher on VACG domains than do subjects placed in more restrictive, sheltered settings. The two subject groups with successful competitive employment experiences (Groups C and D) consistently obtained the highest or second highest average domain scores, whereas the two subject groups who were working in sheltered settings (Groups A and B) consistently scored lowest on VACG domains. The two exceptions..Independence and learning domains'(emphasis reviewer).
(2b) This is not specifically discussed, but the implication is that wherever there is a score increase with job success, that V.A.C.G. domain can function to diagnose 'instructional objectives.'

COMMENT (2a) : Reference to FIGURE 1 demonstrates that "the pattern..suggests.....tend to....highest or second highest....." obscures the statistically significant fact that WORK ACTIVITY/WORKSHOP Group A was the only group occasionally different (and lowest) from the other three (in 3 domains), from two most successful (in 1 domain), and from Group C only (in 2 domains). Only one (1) solitary significant difference existed out of 21 possible interactions between Groups B, C, and D---exactly what would be by chance at the .05 level of probability. COMMENT (2B): With no statistical association between VACG domains and the level of vocational functioning, no remedial prognosis is possible. All this research indicates is, that in its current form, that the V.A.C.G. differentiates between WORK ACTIVITY/WORKSHOP group and groups exposed to competitive vocational placement (both failed and successful).

As an example of a Construct Validity method applied to this investigation, we could develop the following formal rationale:

HYPOTHESIS 1: If the V.A.C.G. has the potential to diagnose vocational differences, there will be significant score differences between DISABLED-FAILED (Group B) and DISABLED-SUCCESS (Group C).

HYPOTHESIS 1a: If the DISABLED-SUCCESS group scores are larger, the V.A.C.G. could be used to diagnose remedial interventions.

TEST OF H_1: Compare Group B and Group C means on each of the 7 reliable* domains for statistically significant differences.

RESULTS OF H_1 TEST (see FIGURE 1):
Number of Domains with significant B v. C differences: 0
Number of Domains with no significant differences: 7

CONCLUSION 1: Since no significant differences exist in the scores between DISABLED-FAILED and DISABLED-SUCCESS group means, the V.A.C.G. domains are not associated with vocational functioning as they are currently constructed.

TEST OF H_{1a}: Not tried (dependent upon H_1 success)

CRITICAL SUMMARY

WHAT CAN THIS TYPE OF RESULT MEAN FOR CLIENTS ?

If there was no selection bias, it could mean: whatever happened to clients after they left sheltered employment, whether they succeeded in competitive employment or not, their V.A.C.G. ratings would increase except for the Learning Domain. What the V.A.C.G. really means is not resolved as previously mentioned.

COULD ANYTHING HAVE DIFFERENTIATED the Group B-DISABLED FAILED from the Group C-DISABLED SUCCESS ? Yes. The study reports that all 19 of the Group C clients were in a "competitive employment training program" which apparently was unavailable to the Group B clients. The V.A.C.G. did not show any differences between the two groups even with this possibly critical treatment difference.

HOW CAN THE V.A.C.G. BE VALIDATED ? If the obvious problems with the item construction, statistical selection, and rater reliability/bias can be corrected, the much-sought reliability may be achieved, and it could turn out to be valid. Without reliability, validity can not be accurately determined. If a cleaned-up V.A.C.G. should prove invalid, then much more complex theorizing about the nature and breadth of vocational skills training functions in relation to vocational success. Perhaps a reconsideration of some very promising early aptitude development and functioning research would be appropriate (Taylor,1964) or more consideration should be given to emotional instability, etc.

WHAT IS WRONG WITH SPECULATION ABOUT THE RESULTS ? Results speculations by themselves are violations of all scientific objectivity, and lead to blurred thinking, disregard of statistical significance. When testable constructs are defined organized into a theoretical structure before data gathering, then a Construct Validity model is generated. Construct Validity is a more powerful research tool than Empiricism, as it allows more complex theories to be slowly generated, tested, and corrected in a scientifically objective manner. It must be good: Menchetti&Rusch(1986a,b)'s statistical authority, E.L.Thorndike heartily approves it(1977,1971) along with L.J.Cronbach(1955,1971) even if they were unaware of it. Dampier(1944) details the development of the Hypothetico-Deductive (Construct Validity) method in physics.

* * *

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VOCATIONAL PATTERNS AND WORK CONCEPTS OF RECOVERING ALCOHOLICS

ANITA A. RIDLEHOOVER

Abstract

More than half of the problem drinkers in the United States are employed. Their behavior costs billions of dollars due to resulting problems of absenteeism, accidents, loss of productivity, and effects on supervisors, coworkers, subordinates, family, and society. The alcoholic holds onto the job desperately, as it is often the last resource enabling him or her to continue drinking. Although some of the problems of the alcoholic worker have been described, information is not readily available on the vocational patterns of recovering alcoholics. Little research has been conducted on work concepts held by recovering alcoholics to determine how these may affect vocational patterns such as productivity and stability, absenteeism and tardiness, and accidents. Through the use of personal interviews, this study describes the vocational patterns and work concepts of six recovering alcoholics.

Alcoholism has been cited as our nation's third largest health problem (Kaplan, Freedman, & Sadock, 1980), with the majority of alcoholics as active members of the workforce. In 1981 it was estimated that there were 10.2 million problem drinkers in the United States and that half of these were employed (Vicary & Resnick, 1982). In 1985, the number of employed alcoholics was reported to be closer to 65 to 70 percent, with an even higher proportion in some countries (Shahandeh, 1985).

Vicary and Resnick (1982) reported that the "billion dollar hangover" of the 1950's has, in the 80's, been estimated to cost industry 42.75 billion dollars annually. This estimate included wasted time and materials, absenteeism, accidents, poor decision-making, lost sales, and low morale (Vicary & Resnick, 1982). According to Wright (1984), the alcoholic employee is absent sixteen times more often than the average employee. Absenteeism resulting from alcohol and drug abuse costs ten to twenty million dollars annually (Shahandeh, 1985). Accidents and sickness benefits are paid to the alcoholic worker three times more often than the nonalcoholic worker (Vicary & Resnick, 1982). The energy divested in hiding alcoholism reduces productivity. Loss of effectiveness may manifest itself in either physically or mentally absent employees (Fennel, Rodin, & Kantor, 1981).

The United States is not the only country whose industry is heavily affected by the cost of alcohol abuse. Alcohol abuse costs Australian industry approximately 600 million American dollars annually, Canada's annual losses are about $7,600 million, and Britain suffers a loss of about $1,500 million annually (Shahandeh, 1985). IG Metall, Germany's largest union, believes alcohol contributes to one third of that country's industrial accidents (Shahandeh, 1985). The United Kingdom reports that seventy to eighty-five days per year are lost at work by alcoholic employees, in addition to tardiness (Hore, 1977). A study in France indicated that work accidents among alcoholics are two to three times greater than among other employees (Goddard, 1981).

However, the true cost of alcohol abuse in the workplace far exceeds the cost of absenteeism, medical benefits, and accidents because it affects not only the employee, supervisors, coworkers, and subordinates (Fennel et al., 1981), but also the family and society at large (Shahandeh, 1985). To the alcoholic, work is often the only remaining realm after losing family, friends, and faith. Talbott (1984) describes the "target syndrome" in which the substance abuser peels away layers of activities and people--first the church, then the community, then friends, hobbies, and peers, then the distant family, and finally the nuclear family. The loss, or threat of loss, of a job can

become the breaking point in the alcoholic's denial (Ronan & Reichman, 1986). Everything else has been lost or damaged. Work loses its meaning, becoming only a method to continue buying alcohol--just a paycheck instead of a source of self-respect and individual worth. The job is often the bottom line which, when threatened, may cause the alcoholic to seek help (Wright, 1984).

Once the alcoholic seeks help, vocational rehabilitation is extremely important to the overall treatment process. Several sources have described the therapeutic effects of work. Black, Kase, and Benney (1981) reported that work was therapeutic by providing a structure where rehabilitation can take place. Ronan and Reichman (1986) stated that work serves as a process in which the recovering alcoholic can regain self-esteem and dignity. In a study by Dyszlewski and Dyszlewski (1981) full-time vocational activities were shown to be positively related to maintenance of sobriety by low socioeconomic status alcoholics. Braunstein, Powell, McGowan, and Thoreson (1983) reported that employment status was a significant variable related to positive outcome on mood and neuropsychological functioning of alcoholics. Kahn and Fua (1985) demonstrated an association between alcoholism counselor training, sobriety, and effective vocational functioning. Patients trained as counselors for other alcoholics showed increases in self-esteem and a sense of adequacy (Kahn & Fua, 1985).

Therefore, when an employer is willing to hire a recovering alcoholic, he or she aids in the rehabilitation process. Employer discrimination has been cited as the main barrier to obtaining employment by recovering alcoholics (Ronan & Reichman, 1986). Employers see alcoholics as poor risks unworthy of an investment in training or a job. Although alcoholics have been protected against discrimination since 1973 under Section 504 of the Rehabilitation Act, this has neither been enforced nor widely acknowledged and alcoholics continue to have a stigma of possessing neither the ability nor desire to find or keep employment (Forcier, 1982). The recovering alcoholic is enmeshed in a Catch-22 situation where to be honest about a drinking problem may result in discrimination, while to be secretive is perpetuating a stigma and violates the honest behavior advocated by therapy (Forcier, 1982).

This study of recovering alcoholics was conducted in order to investigate aspects of work which have changed since the cessation of drinking. This was accomplished by comparing vocational patterns and work concepts pre- and post-treatment from self-reports of recovering alcoholics using qualitative methods.

Methods and Procedures

Due to the confidential nature of the topic under investigation, sampling procedures were nonrandom and subjects asked to participate because the author knew them to be recovering alcoholics. Six recovering alcoholics participated in the study. Participants were selected because they had maintained sobriety for a minimum of one year, were employed or enrolled in school at the time of the interview, had an employment history prior to treatment, and had a significant other who would be willing to contribute information.

Three sources of data were obtained from each subject: a taped personal interview, a questionnaire completed by the subject, and a questionnnaire completed by a significant other such as a family member, employer, spouse, or friend who knew the subject both prior to and after treatment. Information from each data source was grouped into three categories: background history, pre-treatment work history, and post-treatment work history.

Data Analysis

In the data analysis, a list of coding categories was developed. Coding categories are regularities, patterns, and topics in the data which are represented by descriptive words or phrases (Bogdan & Biklen, 1982). Each coding category was assigned a number. Coding categories used in the final analysis were:

1. Age
2. Education
3. Length of drinking
4. Recovery length
5. Treatment programs
6. Follow-up activities
7. Drinking patterns
8. Absenteeism/tardiness
9. Injuries
10. Hangovers/drinking on-the-job
11. Self-perception
12. Employer relationships
13. Coworker relationships
14. Enabling
15. Attitude towards work
16. Quality of work
17. Future goals
18. Job histories
19. Reprimands, suspensions, firings

Coding category numbers were assigned to each unit of data (i.e., sentence, paragraph, or group of paragraphs) that fell under that particular topic, and the data units separated according to coding category. Data was then represented by direct quotation and description of the subjects' responses. The questionnaires were used to cross-check the accuracy of the interviews--the primary data source--as suggested by Goetz and LeCompte (1984).

Results

Background History

The subjects, four male and two female, ranged in age from twenty-seven to fifty-five. Education levels ranged from tenth grade to the doctorate level. Length of alcohol abuse averaged 14.8 years, ranging from three to twenty-eight years. None of the subjects reported receiving help from an Employee Assistance Program. All the subjects had participated in at least one residential alcohol treatment program; most subjects had been in treatment two or three times.

The standard length of stay in treatment was

twenty-eight days. Treatment primarily featured an intensive study of the twelve steps of Alcoholics Anonymous, a spiritual program based on honesty, turning one's life over to a "Higher Power", and working with other alcoholics. All six participants relapsed. Subjects reported their last treatment center offered more intensive emotional work, such as coping skills and how to deal with feelings, in addition to AA. Vocational rehabilitation services were offered in some but not all of the treatment centers attended; however, none of the subjects received these services at that time.

At the time of the interviews, all of the subjects attended Alcoholics Anonymous. In addition to AA, other follow-up activities included: Narcotics Anonymous, Al-Anon, Adult Children of Alcoholics (ACOA), psychotherapy, drug and alcohol urine screens, and Aftercare. Aftercare, a follow-up program offered by most treatment facilities that clients are urged to attend upon discharge in order to aid in the maintenance of sobriety, had been completed by only two subjects. Ineffectiveness and lack of structure were given as reasons for not completing Aftercare.

The following occupations were represented by the subjects: administrative secretary, automobile-body repairer, industrial painter, student, and substance abuse counselor. The sixth subject was employed as a laboratory technician, a bartender, and a professor at a junior college concurrently. Job stability was more evident after treatment, as most of the subjects had been employed at the same job since discharge from treatment. Prior to treatment subjects changed jobs more frequently, job tenure was shorter, and, in general, salaries were lower; however, two subjects reported a decrease in salary after treatment.

Vocational Patterns

Many aspects of work were analyzed and shown to change considerably after discharge from treatment. Attendance at work increased. Prior to treatment, subjects were absent from work an average of 4.4 days a month; after treatment subjects reported they were rarely or never absent from work. Injury rates were higher prior to treatment; however, only one injury was attributed to drinking. All of the subjects reported attending work with hangovers, and if they did not actually drink on-the-job, attended work while under the influence.

Employer relationships improved in quality after treatment. All subjects rated relationships with their employers as being below average prior to treatment, while after treatment, employer relationships were rated as average to above average. Incidents such as reprimands, suspensions, and firings were less frequent and more easily isolated after treatment, with definite precipitators. For example, one subject was technically "fired" when his place of employment was taken over by a new management team, in order to be rehired under the new management. Coworker relationships, although satisfactory prior to treatment, nevertheless improved after discharge. It was common for coworkers to "enable" the subjects. Enabling is a tendency to, consciously or unconsciously, facilitate drinking for the alcoholic. Reported methods of enabling included: acting sympathetic, camouflaging by covering up absences or failing to alert employers, not knowing how to "handle" the situation, to such overt behavior as doctors writing prescriptions for one subject who was a registered nurse.

A recurring theme throughout the interviews was that of the practicing alcoholic as an exceptional worker. Subjects described themselves as "perfectionists", "overachievers", outstanding, over-responsible, and hard workers even while they were drinking. Although the subjects considered themselves and believed others considered them to be excellent workers prior to treatment, they nevertheless reported the quality of their work suffered and improved once they became sober. All subjects rated their work quality as below average prior to treatment and above average after treatment, which was consistent with ratings by their significant others.

Work Concepts

Subjects consistently found work more rewarding after treatment. Prior to treatment, work was seen as a means to a paycheck to support the alcoholic lifestyle; it was viewed as an "income", a "cover" if one had to go to court, a way to maintain the "habit". Subjects saw themselves as "lazy", self-pitying, and having a fear of failure.

After treatment, work took on a new meaning. Work was described as a challenge, a source of enjoyment and pride, providing hopefulness and a purpose to life. One subject expressed gratitude for having a job and described it as a "saving grace". Self-perceptions changed as subjects saw themselves as more assertive, patient, motivated, dependable, and responsible, in addition to having an increased sense of self-esteem, capability, self-worth, and self-sufficiency. Job satisfaction and value for the work one did was also considered important.

Having goals played an important part in the recovery process for the subjects, generating hope where there was none before. When questioned about their future goals prior to treatment, subjects tended to respond in a pessimistic, negative manner. When asked about their current goals, subjects responded optimistically, indicating a willingness to work toward those goals by taking the necessary steps to accomplish what they desired.

Conclusions

To many practicing alcoholics, work means only a paycheck--a way to buy more alcohol. Work frequently is all that remains after the alcoholic has peeled away layers of people and activities like the skins of an onion, as described by Talbott's (1984) "target syndrome". Findings in this study are consistent with the view that work is important to alcoholics because it enables them to continue drinking. When work is threatened, many problem drinkers seek help at an alcohol treatment center.

This study revealed that maintenance of sobriety was facilitated when subjects attended

treatment centers that offered personal growth and development skills training in addition to the study of Alcoholics Anonymous, and that AA alone was less effective in maintaining sobriety. Follow-up activities such as support group participation and psychotherapy were more effective in maintaining sobriety than Aftercare, a program offered by many treatment facilities. Therefore, a model alcohol rehabilitation treatment program might emphasize personal growth and development skills training, support group attendance, and psychotherapy.

As can be expected, most vocational patterns and work concepts improved after treatment discharge. Job stability, as characterized by less frequent job changes, longer job tenure, and higher salaries, increased. Work attendance increased while on-the-job injuries decreased. Supervisor and coworker relationships improved in quality. Work quality improved. It is interesting to note that all the participants in this study considered themselves to be exceptional workers prior to treatment. This was attributed to overcompensation for shortcomings and a need to be "perfect".

It is possible that improved vocational patterns can be attributed to changing work concepts. After treatment, subjects reported work was more rewarding, presented a challenge, and provided a source of enjoyment, pride, hopefulness, and a purpose to life. Job satisfaction and value for one's work was considered important. As self-perceptions changed, subjects regarded themselves as more assertive, patient, motivated, dependable, and responsible. Feelings of self-esteem, capability, and self-sufficiency increased. Subjects responded in a positive, optimistic manner when questioned about future goals.

This study broadly examined vocational patterns and work concepts of recovering alcoholics. Further research is needed to examine any one or a combination of these factors with a larger sample.

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Correlates of Consumer Satisfaction with Vocational Evaluation Services

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Abstract

This study assessed client ("consumer") satisfaction with vocational evaluation services as a function of eight demographic variables. The results of 154 clients at a comprehensive, rural rehabilitation facility indicated that they were generally satisfied with vocational evaluation services and only one demographic variable (i.e., the client's financial arrangements) significantly influenced satisfaction ratings. Expressed satisfaction was also found to decrease as a function of the length of time spent in the vocational evaluation program.

A proliferation of information concerning program accountability and consumer satisfaction can be found within the rehabilitation literature of the early 1970's. Consumer involvement and program evaluation were two prominent themes stressed in the Rehabilitation Act of 1973 (Rubin & Roessler, 1987). The rise in consumerism and the demand for accountability pressured vocational evaluation, as well as other rehabilitation programs, to address the issue of consumer (also known as client and/or service recipient) satisfaction with provided services. The combination of these two themes resulted in the demand to evaluate increased consumer involvement and indicated that considerably more attention will need to be given to consumer satisfaction with such things as type of services received, the length of programs, and the process of vocational rehabilitation.

The demand for legislation requiring the evaluation of programs and services offered by rehabilitation facilities is not a new one. It has been only recently, however, that service recipients have joined together to voice their collective opinions and perceived needs, and to demand accountability for services received. Demands for more comprehensive services, including more efficient and timely delivery of services, have been vocalized by persons with disabilities since the late 1970's (McFarlane & Frost, 1981). "According to one comprehensive survey, three-tenths of successful rehabilitants and nearly half of non-rehabilitants were dissatisfied with their rehabilitation plans or claimed that none had been prepared" (Levitan & Taggart, 1982, p. 99). Haber (1984) reported that the Rehabilitation Act of 1973 "... institutionalized a sense of entitlement for disabled persons among the general population and in the federal government and has been a stimulant towards the organization of disability advocacy groups" (p. 27). Finally, Rubin and Roessler (1987) compared the rise in consumer awareness among persons with disabilities to that of various other minorities whose segregation from society was based on such things as ethnic origin, and religious or sexual preference.

Traditionally, a paternalistic attitude provided a rationale for rehabilitation professionals to exert control over the lives of their consumers by limiting their access to educational, financial, vocational, and emotional assistance (DeJong, 1979). McFarlane and Frost (1981) concured with DeJong's (1979) observations. They further elaborated that although the rise in consumerism by persons with disabilities appeared to be a positive step towards independence, "it is one that has not attained a balance between the delivery of services and consumer expectations and demands" (McFarlane & Frost, 1981,p. 21). Consumers remain encouraged to become involved in their service eligibility determination and Individual Written Rehabilitation Plan (IWRP) development. The demand for consumer involvement also resulted in the appointments of rehabilitation service consumers to governing boards of facilities and agencies at the local, state and federal levels.

Program evaluation methods are used to examine such items as the number of consumers served, the overall effectiveness of service delivery programs, and the degree of consumer satisfaction with provided services (Rubin & Roessler, 1987). Traditionally quantitative measures have been used to document program effectiveness. Some

examples of quantitative measures include (a) the number of consumers served, (b) the number of successful closures, and (c) the number of persons who achieve a criterion level on a specific test. Patterson and Leach (1987) also included fiscal considerations (e.g., number of dollars gained and amount of profit realized) in program evaluation data.

A recent shift in program accountability has been noted and program evaluation systems are now beginning to supplement the traditional quantitative program evaluation measures with items exploring consumer perceptions concerning the efficiency and effectiveness of rehabilitation programs (Cook, 1977). These non-traditional program evaluation measures seek to determine the success of rehabilitation programs. Patterson and Leach (1987) predicts, however, that "while quantitative measures will continue to remain the central thrust of rehabilitation program evaluation, the feedback provided by rehabilitation consumers is valuable and should not be relegated" (p. 42). In other words, the rise in consumerism among persons with disabilities as well as their family members and advocates, has resulted in a demand for accountability that ultimately pressured rehabilitation programs to not only address the level of consumer satisfaction with provided services, but also the level of consumer satisfaction with the duration of services.

Although consumer satisfaction with vocational evaluation, as well as other rehabilitation services, is not a new concept, the topic has been resurrected only recently within the rehabilitation literature. Numerous articles concerning consumer satisfaction were published during the period which coincided with the development of Rehabilitation Act of 1973; however, since the passage of the Rehabilitation Act of 1973, only a few papers exploring consumer satisfaction issues can be found. This undersupply of consumer satisfaction literature has lasted from the middle 1970's until the middle 1980's.

Two major reasons have been proposed for the lack of studies concerning consumer satisfaction (Patterson & Leach, 1987). The first reason addressed the difficulty of predicting consumer satisfaction through the criteria of treatment outcome (Patterson & Leach, 1987). Cook (1977) cited a study which revealed that the level of consumer satisfaction was directly related to the extent of consumer agreement with received services. In other words, when consumers disagreed with recommendations for treatment, they were more likely to express dissatisfaction with received services. "Client satisfaction with rehabilitation studies have found that clients in the rehabilitation process or closed rehabilitated were generally satisfied with the program" (Cook, 1977, p. 112).

The second reason concerned consumers' perceived ability to make educated estimates of the quality of services received. Consumers of rehabilitation services can certainly tell whether they were treated courteously, compassionately, and professionally by rehabilitation practitioners. The problem lies in the doubt that these same consumers would be able to reliably judge whether or not they have received competent services. In addition, Levitan and Taggart (1982) reported that the degree of consumer satisfaction varied with such demographic variables as type of disability, age, and level of education.

Consumer satisfaction has been examined in a variety of rehabilitation settings including rehabilitation counseling (Emener & Placido, 1982), sheltered employment (Cooley, Sewell & Rich, 1985) and supported employment (Lam, 1986). Similarly, the concept of "client" satisfaction can also be found in the vocational evaluation literature. For example, the Vocational Evaluation Satisfaction Scale (VESS), an instrument designed to measure consumer satisfaction, was recently developed for use in rehabilitation facilities (Sabin, Cuvo, & Musgrave, 1987). "Although there was a great deal of activity in the 1970's in the area of consumer satisfaction and most states have continued to collect consumer satisfaction information, there has been a paucity of rehabilitation research on consumer satisfaction in recent rehabilitation journals" (Patterson & Leach, 1987, p. 40). The purpose of this study was to explore the relationships between consumer satisfaction with vocational evaluation and selected consumer demographic variables and vocational evaluation program length (Mades, 1986).

Method

Participants

The participants for this study were 154 consumers receiving vocational evaluation services at a rural comprehensive rehabilitation facility. The participants were volunteers who had signed a research consent form prior to beginning vocational evaluation services. Approximately 67% of the consumers were male. Over 60% of the consumers were between the ages of 20 and 39, although consumer ages ranged from 17 years to 59 years. The consumers were diagnosed as having a variety of disabilities including visual impairments, hearing impairments, orthopedic problems, mental impairments, behavioral disorders, learning disabilities, emotional difficulties, cardiovascular problems, cerebral palsy, and epilepsy. The consumer demographic variables, which were obtained during the initial intake interview, included (a) disability type, (b) gender, (c) age, (d) living situations which included parental home, rehabilitation centers, own apartment or home, half-way houses, nursing homes and transitional (or temporary) living settings, (e) financial arrangements which included receiving Supplemental Security Income (SSI) benefits, Social Security Disability Income (SSDI) benefits, no benefits, Aid to Families with Dependent Children (AFDC), Unemployment benefits, and other public assistance benefits, (f) educational level, (g) employment history (categorized as never worked, worked one year or less, worked two to four years or worked five or more years), and (h) quality of previous work (defined as no pay and no benefits, pay and no benefits, and pay and benefits).

Questionnaire

The Vocational Evaluation Satisfaction Scale (VESS) was designed to measure satisfaction with the various components of a vocational evaluation program by circling responses to 34 items. A total score on the VESS was obtained by following the procedure described by Sabin, et. al, (1987) in which positively stated item answers were scored in the following manner: strongly agree-4 points, somewhat agree-3 points, somewhat disagree-2 points, and strongly disagree-1 point. Reversed scoring system was used for negatively phrased items. Since the questionnaire consisted of 34 items, a client's total score could range from 34 to 136. Acceptable reliability and validity coefficients for the VESS have been reported (Sabin, et. al., 1987).

Procedure

The VESS was designed to be administered to vocational evaluation clients during the final day of vocational evaluation services by an evaluator other than the one who evaluated the client, referred to here as the proctor. In our study, the scale was administered in a room free of distractions with the proctor present at all times. The proctor asked the client to be seated, and then provided him or her with two sharpened pencils and a copy of the VESS. Proctor assistance was provided at the request of the client

and only within the following established framework:

1. Reading instructions or items.
2. Rewording instructions or items.

The proctor indicated any assistance provided to the client on the form after the scale was completed. After five minutes had passed, the proctor asked clients if they had any questions concerning the scale. Upon completion of the scale, the proctor reviewed the pages to insure that all items were completed. If items were not answered, the client was asked at that time to complete the missing items.

Results

Consumer satisfaction with vocational evaluation services was measured by the VESS and program length varied from 2 to 20 days. A preliminary analysis of VESS scores established that the consumers were satisfied with received vocational evaluation services (M = 122.58, S.D. = 12.94). No significant differences were reported in satisfaction as a function of disability type, F (8, 144) = 1.64, n.s., consumer gender, t (151) = .73, n.s., employment history, F (4, 148) = .75, n.s., quality of previous work, F (2, 151) = 1.29, n.s., and living situation F (3, 149) = 1.87, n.s. Similarly, consumer age and educational level were not related to individual VESS scores, both r's <.11, n.s.

A significant effect for the consumer's financial arrangements, F (5, 147)) = 3.57, $p < .01$, and follow-up Fisher LSD tests ($p < .05$) revealed that consumers receiving SSI benefits (M = 114.46) and consumers receiving SSDI benefits (M = 115.17) were less satisfied with vocational evaluation services than consumers receiving no benefits (M = 124.79).

In addition, the duration of vocational evaluation services was found to be negatively related to satisfaction, r (151) = -.38, $p < .01$. This correlation suggests that as the amount of time spent in vocational evaluation increased, satisfaction with services decreased. To further confirm this negative relationship, clients were divided, via a median split, into two groups based on the duration of evaluation services. Clients in vocational evaluation longer than 8 days reported less satisfaction with services (M = 116.60) than those clients in evaluation seven or fewer days (M = 124.69), t (151) = 3.24, $p < .01$.

Discussion

The results of the present study suggested that consumer satisfaction was not related to most of the examined demographic variables. In general, consumers of vocational evaluation services indicated satisfaction with their individualized vocational evaluation programs. One of the two variables significantly influencing satisfaction ratings was the consumer's financial arrangements. Further examination of the categories within this variable indicated that consumers who were receiving some type of financial assistance through Social Security (either SSI or SSDI) reported less satisfaction with vocational evaluation services than consumers receiving no financial assistance at the time of their vocational evaluation program. Clients may have feared that vocational evaluation services may result in a loss of these benefits. These financial disincentives have also been cited by other authors (Berkowitz, 1981; Levitan & Taggart, 1982) as one of rehabilitation's greatest problems and are worthy of additional research.

For example, it is recommended that further study be conducted which explores the relationship between financial arrangement and expressed level of satisfaction with proffered vocational evaluation services. More stringent experimental control should be applied to these studies, for instance, exploring the differences in consumer satisfaction between a group a consumers receiving vocational evaluation services who indicated receiving SSI or SSDI support at the time of Intake, and a matched group of consumers who are not receiving Social Security benefits of any type at Intake.

In addition, the length of the consumer's vocational evaluation program significantly influenced expressed satisfaction. Specifically, the longer a client remained in a vocational evaluation program, the lower the VESS score. This finding does not support the widely held belief that longer vocational evaluations are more desirable (Wahl, 1983; Mades, 1986).

Further research concerning consumer satisfaction is needed within the field of vocational evaluation as well as the more general field of vocational rehabilitation. The setting used for this study is very similar to a laboratory or clinical setting. Traditional paper and pencil psychological tests as well as selected work sample components are administered to vocational evaluation consumers on a four day per week, five hours per day schedule. Neither actual nor simulated work tasks were included in individual vocational evaluation programs, and on-the-job evaluation techniques were used sparingly if at all. It is possible that the obtained results of this study would be different had simulated, real, and/or on-the-job evaluation methods been used as part of the vocational evaluation program.

It is also recommended that future consumer satisfaction studies explore possible differences in responses obtained at the end of the vocational evaluation program as compared to responses obtained during 60-day, or longer, follow-up activities. Consumers whose future looked exceedingly rosy at the end of vocational evaluation services, may not be finding that the future is as rosy as anticipated and vice versa. Unexpected economic turns, over-enrollment in educational institutions, and windfall legislation, are just a few of the factors which could affect satisfaction with services. There are personal factors (e.g., death, marriage, divorce, depression) that could also possibly affect a consumers perception of satisfaction with received rehabilitation services. For example, a consumer who indicates high satisfaction with the vocational evaluation recommendation of ready for placement as a clerk/typist, may not be so satisfied with the vocational evaluation recommendation if still unemployed 60 days later. Conversely, a consumer who was dissatisfied with a vocational evaluation recommendation that would require relocation to another city, at the end of the evaluation program, might not mind moving 60 days later if moving would mean relocation nearer one's new spouse.

Previous literature has indicated three major areas of concern among current methods of evaluating consumer satisfaction with received services: (a) the extent of the relationship between desirability of recommendations and degree of expressed consumer satisfaction (Patterson & Leach, 1985), (b) the extent to which consumers are able the judge the quality of received services (Patterson & Leach, 1985), and (c) the relationship between client satisfaction and certain demographic variables such as type of disability, age, and level of education (Levitan & Taggart, 1982). According to the results of the present study, the only demographic variable showing a significant effect on client satisfaction was the type of financial support received by the consumer upon entrance to the program. Further examination of this effect indicated that consumers receiving SSI and SSDI payments tend to report less satisfaction with received services. Therefore, further investigation into the reasons for the lowered satisfaction among Social Security benefits recipients is also warranted. Finally it is recommended that future program length studies should be

expanded to include programs utilizing situational assessment and OJE techniques, thus providing additional and possibly useful information for vocational evaluators concerned with consumer satisfaction.

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A Comparison of Rehabilitation Clients Tested and Self-Estimated Vocational Aptitudes and Interests

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Abstract

This study examined the relationship between rehabilitation client expressed vocational aptitudes and interests and those measured by well established tests. Results revealed that clients have more accurate insight into their interests rather than aptitudes. In general, clients were found to over estimate many interests and aptitudes in comparison to their tested levels.

The need to accurately identify an individual's vocational aptitudes and interests while in a vocational evaluation program has received a great deal of attention in the rehabilitation literature (Berven, 1984; Bolton, Brookings, Taperek, Rowland, Cook, & Short, 1980; Goleman, 1980; Pruitt, 1986). The identification of these aptitudes and interests has historically been attempted through a variety of methodologies such as counseling, aptitude test batteries, and interest inventories (Anastasi, 1988; Zytowski, 1982). In spite of the National Educational Association's 1972 moratorium on the use of standardized intelligence, aptitude, and achievement tests, a 1981 survey found that "93% of the reporting schools at some time administered at least one vocational aptitude or interest inventory to all students in grades 7-12" (Zytowski, 1982, p.16). Clearly, regardless of the questions raised about them, standardized interest and aptitude tests have received acceptance in vocational assessment so as to eclipse other methodologies such as work samples, situational assessment, and self-reporting techniques (Robbins, 1980; Zytowski, 1982). Among these less favored methodologies, the following studies have examined the use of self-report techniques to identify vocational aptitudes and interests.

Stewart, Davis, Wilson, and Porter, (1981) compared expressed versus tested vocational interests between 200 incarcerated and non-incarcerated adolescents using the California Occupational Preference System (COPS). The authors worked from the assumption that vocational interests can be expected to have gained stability by adolescence. They found that non-incarcerated youths indicated a greater degree of congruity between tested and expressed interests than those youths who were incarcerated. Even so, the non-incarcerated group differed between tested and expressed interests on 63 out of 100 occasions. The authors identified stereotypical thinking (e.g., ignoring career options to which they have not been exposed) as one barrier to the self-identification of vocational interests. This view also tends to be supported by Meyer, Fouad, and Klein, (1987) who stated that, with the rapid advances in technology, making an occupational choice is "almost impossible for the client who may be relatively inexperienced and/or naive about the world of work demands" (p.120).

After comparing self-expressed interests with the results from the Kuder Occupational Interest Survey, Nelson (1981) concluded that it was not possible to predict if an expressed vocational choice would be confirmed through standardized tests. He stated that while it may be common to ask a young person what their vocational interests are, "sizable discrepancies between claimed and measured vocational interests are not uncommon" (Nelson,1981, p. 21).

Westbrook (1988) believed that self-estimates, while useful, provide "different information than actual measures of aptitudes" (p.182). Using the Differential Aptitude Test (DAT), he found that students overestimated all their aptitude scores. Overall, there was poor correlation between estimated and obtained scores. Finally, he reported that no higher than 50% of the students could predict their DAT scores within a standard error of measurement. However, because the data are unpublished, it is difficult to determine how the self-estimated scores were obtained or what benefits may be received from self-estimates.

Three studies regarding the agreement of tested with claimed interests are reviewed by Cronbach (1984). The range of agreement between claimed versus tested interests ranged from 33% to 66% among the the studies. Cronbach cites several possible explanations for the disagreement between self-expressed interests and tested scores. He specifically explains that comparisons are difficult because: (1) tests measure a wide range of content, (2) an individual nor ally compares his/her interests in relative strengths, and (3) the differences in the construction of the inventories.

The purpose of the present study was to examine the relationship between rehabilitation client expressed vocational aptitudes and interests and those measured by well established tests. This will determine if a client receiving vocational evaluation services can identify his/her vocational aptitudes and interests as accurately as traditional testing techniques.

Methods

Subjects

The participants in this study were 42 volunteer state VR agency clients receiving vocational evaluation services at a comprehensive rehabilitation facility. Clients were included for participation if they were: (1) able to read, (2) physically able to complete the research instruments, and (3) willing to participate in the study. Nevertheless, some clients who participated did not finish all sections of the test instruments but they were still included in the study based on the areas they completed.

The subjects were 28 males and 14 females. The age of the clients ranged from 18 to 51 years old. A diversity of disabling conditions were represented in the study. Classification by primary disability, as indicated by their rehabilitation records, included: 45% orthopedic impairment, 36% mental illness, and 19% "other" disabilities (these included mental retardation, visual impairment, or neurological disorder). A review of the subjects' work history indicated that 52% of the clients had been competitively employed for over 5 years, 45% of the clients had been competitively employed less than 5 years, and 3% of the clients had no prior work history.

Instruments

GATB. The standardized instrument used for measuring client vocational aptitudes was the General Aptitude Test Battery (United States Department of Labor,1979). This test is composed of 12 subtests that convert into the following nine aptitude areas: general intelligence, verbal, numerical, spatial, form perception, clerical perception, motor coordination, finger dexterity, and manual dexterity. Parker (1987) stated that "research over several decades has yielded extensive validity and reliability data that support the contention that the GATB is unsurpassed as a vocational aptitude battery" (p. 88). The GATB, of all multiple aptitude test batteries, is considered to have the best validity research linking test scores to job performance (Keesling, 1985). Additionally, extensive research has strengthened the argument for using this instrument with different handicapped populations (Droege, 1987).

USES Interest Inventory. Vocational interests were assessed in the present study by the USES Interest Inventory (United States Department of Labor, 1981). This interest inventory is considered a highly reliable and valid measure of the following 12 vocational interest areas: artistic, scientific, plants and animals, protective, mechanical, industrial, business- detail, selling, accommodating, humanitarian, leading-influencing, and physical performing (Bolton, 1985; 1988; Department of Labor,1982; Droege, 1987). Brookings and Bolton (1986) identified this interest inventory as "the best choice for use with handicapped adults" (p.174) for identifying vocational interests.

Self-report Questionnaires. Questionnaires were also developed for the purpose of assessing each clients' self-estimated vocational interests and aptitudes. The interest self-report questionnaire was formulated using the 12 interest areas and their definitions adapted from the USES Interest Inventory (Department of Labor,1981). Formulation of the aptitude self-report questionnaire was adapted from the nine aptitude areas as defined by the GATB (Department of Labor,1979). Clients rated each interest and aptitude area separately on a five point scale ranging from very high ("5") to very low ("1").

Procedure

While receiving their initial intake interview at the facility, vocational evaluation clients were informed of the research study and requested to participate. Upon indicating their willingness to participate, clients signed voluntary consent forms. Participating clients were given verbal instructions for completion of the self-report aptitude and interest questionnaires. If additional help in completing the forms was requested, it was given by the evaluation staff. Clients were then, in the course of their vocational evaluation program, given the USES Interest Inventory and the GATB in counterbalanced order.

Results and Conclusions

Scoring. Similar to the self-report questionnaires, interest and aptitude test scores on the GATB and USES Interest Inventory were transformed into a five point rating scale ranging from very high ("5") to very low ("1"). Each tested aptitude score was adapted from the following system proposed by McCroskey and Perkins (1984) for aptitude rating: Very high (120 and above) = "5", high (110 to 119) = "4", average (90 to109) = "3", low (80 to 89) = "2" and very low (79 and below) = "1". Each interest score was consistent with the USES Inventory manual (Department of Labor, 1981) and fell along the following continuum: Very High (66-99) = "5", high (58-65) = "4", average (43-57) = "3", low (35-42) = "2", and very low (0-34) = "1".

Aptitudes. Table 1 presents the correlations and mean differences between client self-expressed and GATB tested aptitudes. An examination of this table reveals that a significant degree of consistency between expressed and tested measures was found for only three of the nine aptitudes (general, numerical, and spatial). In addition, clients indicated significantly higher self-estimated levels over tested levels on five aptitudes (general, verbal, motor coordination, finger dexterity, and manual dexterity). Self-expressed clerical perception, however, was found to be significantly lower than its tested level.

Interests. Table 2 presents the correlations and mean differences between client self-estimated and USES Interest Inventory tested vocational interests. An examination of Table 2 reveals a significant relationship between expressed and tested interests in 10 of the 12 interest areas (artistic, scientific, plants and animals, protective, mechanical, business -detail, selling, humanitarian, leading-influencing, and physical performing). In addition, clients expressed significantly higher levels of interest in the areas of artistic, plants and animals, protective, mechanical, business-detail, accommodating, humanitarian, and leading-influencing than indicated by their test results.

Summary. The present study examined the relationship between client self-estimated vocational interests and aptitudes with those measured by the USES Interest

Inventory and the GATB. In general, the client's expressed interests were consistent with their tested interests. However, clients overestimated eight of the 12 interest areas in comparison to tested interests. Clients appear to be less accurate in estimating their level of vocational aptitudes. Similar to interests, expressed aptitudes, generally, tended to be higher than levels indicated by testing. These findings are consistent with those reported by others (Nelson,1981; Stewart et. al., 1981; Westbrook, 1988) and suggest that rehabilitation clients receiving vocational evaluation services have better insight into their vocational interests than their vocational aptitudes. The data also suggest that clients tend to overestimate their levels of vocational interests and the strength of their vocational aptitudes.

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Table 1.

Correlations and Mean Differences between Client Self-Estimated and GATB Measured Aptitudes

	M Expressed	M GATB	t^1	r^2
General	3.21	2.49	4.29**	.48**
Verbal	3.32	2.84	2.83**	.17
Numerical	2.66	2.38	1.89	.68**
Spatial	2.63	3.03	1.86	.34**
Form Perception	3.37	2.97	1.68	.02
Clerical Perception	2.68	3.13	2.39*	.22
Motor Coordination	3.24	2.26	4.64**	.23
Finger Dexterity	3.05	2.32	2.93**	.07
Manual Dexterity	3.26	2.24	4.55**	.26

*p<.05 **p<.01
1. df's varied from 35 to 37.
2. df's varied from 35 to 38.

Table 2.

Correlations and Mean Differences between Client Self-Estimated and USES Measured Interests

	M Expressed	M USES	t^1	r^2
Artistic	3.43	2.49	4.73**	.43**
Scientific	2.60	2.54	.70	.44**
Plants &Animals	3.24	2.89	2.10*	.52**
Protective	3.55	2.88	4.22**	.39*
Mechanical	3.43	2.98	2.76**	.53**
Industrial	2.74	2.66	.67	.20
Business-Detail	3.31	2.63	4.15**	.36*
Selling	2.69	2.54	.88	.36*
Accommodating	3.38	2.61	3.96**	.05
Humanitarian	3.71	2.68	8.63**	.71**
Leading-Influencing	2.91	2.39	3.21**	.49**
Physical Performing	2.60	2.76	1.03	.33*

*p<.05 **p<.01
1. df's varied from 39 to 40.
2. df's varied from 38 to 39.

The Relationship of Endurance to Static and Dynamic Performances as Assessed by the BTE Work Simulator

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Abstract

Static, dynamic and three endurance measures were obtained from young adult females using Tool #162 of the BTE Work Simulator. The correlations of the endurance indices with static and dynamic performances were modest, accounting for a small proportion of the explained variance. The results suggest that a comprehensive assessment of hand strength should include endurance as well as static and dynamic measures.

Static measures require an individual to exert force against an immovable object. Dynamic differs from static performance in that the individual moves an object or performs work. Because most industrial tasks involve movement, it has been suggested (e.g., Aghazadeh & Ayoub, 1985; Kroemer, 1985) that dynamic measures better simulate job-related tasks than static measures. Although this position is well-taken, dynamic measures differ from many job performances in several significant ways. One important difference is that most dynamic measures are obtained in no more than a few trials and that many actual jobs require repeated performance of the same response. If a job demands frequent emissions of the same response, then a client's endurance could be a more critical factor in determining job performance or injury than either static or dynamic hand strength.

Although a reasonable argument can be made for endurance measures, they will be of little benefit to vocational evaluators unless they provide information not available from assessments of static and dynamic performances. The present study sought to determine if endurance can be reliably predicted from static or dynamic measures. This objective was accomplished by correlating static and dynamic performances on Tool #162 of the BTE Work Simulator (BTE) with several endurance measures yielded by the same instrument.

If endurance is highly correlated with either static or dynamic measures, then very little would be learned by assessing endurance. Conversely, a low correlation between endurance and static and dynamic indices would suggest the possibility that vocational evaluators would obtain a more comprehensive assessment of hand strength by including endurance measures in their protocols.

Method

Subjects

The subjects were 67 female undergraduates from Appalachian State University. The participants ranged in age from 17 to 26 years and none had a hand injury which impaired current functioning.

Instruments

The main components of the BTE are an exercise head that furnishes resistance against which the client responds, and a console for setting and recording these resistances. Work Simulator Model 101A was used in the present study. It allows the exercise head to be set at heights ranging from 38 to 53 in. Performance measures can be obtained from a variety of tools that can be inserted into the exercise head. Number 162 is one of the most frequently used BTE tools and has the shape of a hand dynamometer. One of the advantages of the BTE is that it furnishes both static and dynamic measurements.

[1]Additional information concerning this article can be obtained by writing to the authors at the Psychology Department, Appalachian State University, Boone, NC 28608.

Procedure

Three static performances were obtained from each hand. Approximately 15 seconds separated static trials to minimize fatigue effects. One dynamic trial on each hand was then assessed. Procedures recommended by the Baltimore Therapeutic Equipment Company (J. Jacobs, personal communication, January 1988) were followed in ga hering the static and dynamic data.

Three endurance measures, each designed to indicate the effects of repeated performance of the same response, were computed for each subject. The first endurance measure was the mean performance of Trials 48 to 50. Two other endurance indices provided a comparison of the client's performance under minimum fatigue to performance after a number of trials. The second endurance measure, which we will call "absolute performance ioss," was determined by subtracting the subject's mean static performance from the mean performance on Trials 48 to 50. For example, let us assume that a subject's mean static performance was 210 in./lb and the mean performance on Trials 48 to 50 was 150 in./lb. The mean static performance could then be subtracted from the mean of trials 48 to 50 to determine the decline in performance. When endurance is calculated in this manner, a highly negative score indicates a low degree of endurance.

Absolute Loss = Mean Trials 48 to 50 - Mean Static

Absolute Loss = 150 - 210 = - 60 in./lb

A third procedure computed the "proportional loss" in static strength as a result of repeated trials. The formula for proportional loss is

Proportional Loss = Absolute Loss / Mean Static

Proportional Loss = - 60 / 210 = - .286

Results and Discussion

The primary purpose of this investigation was to assess the relationships bet[illegible] static and dynamic indices and three measures of endurance. Static performance was significantly correlated with both right- and left-handed performance on Trials 48 to 50 (Appendix A). However, statistical significance does not necessarily indicate that these correlations will allow vocational evaluators to accurately estimate endurance from static hand strength. Static performance explained only 49% of the variation in right-handed scores on T[illegible]ials 48 to 50 and only 50% of the variation in Left-handed scores. The association of the dynamic measure to performance on Trials 48 to 50 was also weak, accounting for 31% of the variance in right-handed and 16% of the variance in left-handed performance.

The correlations of static and dynamic performances with the absolute and proportional loss measures were lower than with performance over Trials 48 to 50. Significant negative correlations were found between static performance and the absolute loss index. However, the coefficient of determination was only (.24) for the right hand and (.09) for the left hand. The correlation of dynamic performance with the absolute loss endurance measure did not obtain significance. Neither static nor dynamic performances were significantly correlated with the proportional loss measure.

These results indicate that neither static nor dynamic measures reliably estimate any of the endurance indices used in this study. In other words, endurance measures furnish vocational evaluators with information that cannot be gained from either static or dynamic performances.

A question could be posed concerning the most useful index of endurance. We doubt research will ever find a single measure that is "best" for all situations. Endurance is a very rich concept, which should not be limited to a solitary index. Only three simple endurance measures were examined in the present study. Other, potentially important, indices could be extracted from the raw data. For example, a measure of variability and a slope could be easily computed across endurance trials. Other endurance testing procedures should also be investigated. For instance, endurance could be assessed by a series of dynamic trials. Alternatively, clients could be required to maintain a steady force for as long as possible. In addition, the decline in force following a single maximal exertion could be plotted.

In sum, endurance measures yielded information that was not redundant with static or dynamic indices. These results provide support for the position that a comprehensive analysis of hand strength should include endurance as well as static and dynamic measures. The next logical question to be posed is: What value is this information provided by endurance assessment to vocational evaluators? Unfortunately, the same question can be asked of the more commonly used static and dynamic measures. Certainly, there are many vocational evaluators who are convinced that BTE static and dynamic assessments are helpful. No doubt, these evaluators have thoughtful rationales underlying their conclusions. We too, can make a reasonable argument for the need for endurance measures. However, reasoning and consensus among evaluators are weak substitutes for empirical data. We are of the opinion that the BTE has significant potential as an assessment device. Still, the value of an evaluation instrument cannot exceed the research upon which it is based. We look forward to and encourage studies that establish the empirical validity of static, dynamic and endurance measures using the BTE.

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Appendix A

Relationships of static and dynamic performance to hand endurance

Right Hand

Means and Standard Deviations

	STATIC	DYNAMIC	TRIALS 48-50	ABSOL LOSS	PROP LOSS
MEAN	211.68	2747.00	151.11	-60.57	-.28
SD	45.60	884.09	41.37	33.78	.14

Simple Correlations Coefficients of Determination*

	STATIC	DYNAMIC	TRIALS 48-50	ABSOL LOSS	PROP LOSS
STATIC	1.00	.64** (.41)	.70** (.49)	-.49** (.24)	-.17 (.03)
DYNAMIC			.56** (.31)	-.18 (.03)	.04 (.00)
TRIALS 48-50				.28* (.08)	.57** (.33)
ABSOL LOSS					.93** (.86)

Left Hand

Means and Standard Deviations

	STATIC	DYNAMIC	TRIALS 48-50	ABSOL LOSS	PROP LOSS
MEAN	195.19	2399.09	130.38	-64.81	-.33
SD	35.93	723.62	38.55	28.56	.15

Simple Correlations Coefficients of Determination

	STATIC	DYNAMIC	TRIALS 48-50	ABSOL LOSS	PROP LOSS
STATIC	1.00	.45** (.21)	.71** (.50)	-.30** (.09)	.09 (.00)
DYNAMIC			.40** (.16)	-.02 (.00)	.15 (.02)
TRIALS 48-50				.46** (.21)	.75** (.57)
ABSOL LOSS					.91** (.82)

Note. ABSOL = Absolute. PROP = Proportional. Static, Trials 48-50, and Absolute Loss were measured in in./lb. Dynamic performance was assessed in engals.

*Coefficients of determination are in parentheses. Number of subjects = 67.

*$p < .05$. **$p < .01$.

The Use of Regression Analysis to Estimate Preinjury Static and Dynamic Performances on Tool #162 of the BTE Work Simulator

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Abstract

Multiple regression procedures generated equations to estimate the magnitude of performance loss due to injury. Examples were presented illustrating how these equations can be used with Tool #162 of the BTE Work Simulator to assess loss in static and dynamic strength following an injury.

A nineteen year-old seamstress from North Carolina recently injured her right hand in a factory accident. A lawsuit followed concerning the compensation that she was entitled to receive. The central issue was the magnitude of impairment caused the accident.[2]

A physician was employed as an evaluator by lawyers representing the factory owners' insurance company. He assessed the seamstress and determined that her disability was 10%. The measurement procedures he followed in deriving this figure were never specified. We were employed by the seamstress' attorney to evaluate his client and establish the effects of the injury on her manual abilities.

Before the extent of impairment due to an injury can be determined, it is necessary to: 1) assess the client's current performance, and 2) estimate performance on the same evaluation instrument prior to injury. Performance loss can then be calculated by subtracting the estimated preinjury performance from the current performance.

Circumstances specific to the case indicated that static hand strength would provide a useful index of performance. Assessing the seamstress' current static hand strength was not difficult. But how could we determine what the seamstress' hand strength was before the onset of disability? The question is not only of great applied importance, but also conceptually intriguing. How can we measure what no longer exists and may never exist again?

At the Third National Forum on Issues in Vocational Assessment, we (Sigmon & Beck, 1988) demonstrated how multiple regression techniques can be used to generate equations that provide accurate estimates of preinjury performance on the Jamar hand dynamometer. We tested the seamstress and used these equations to discover what her score would have on the Jamar before the accident. The seamstress' preinjury performance was then compared to her current Jamar performance, revealing that the injury produced a 50% loss in hand strength. These findings were reported to the seamstress' attorney. Largely on the basis of these data, an out-of-court settlement, favorable to the seamstress, was reached.

The methodology used to estimate preinjury Jamar performance can be applied to a variety of assessment instruments and impairments. This paper describes how multiple regression can furnish objective estimates of preinjury static and dynamic hand strengths on Tool #162 of the BTE Work Simulator (BTE). Weight, height, hand volume, hand dominance, sex, and performance on the noninjured hand were the independent variables. These variables were chosen because there was a high probability that they would be correlated with the dependent measures, and they could easily be recorded by most vocational evaluators. A sample of persons who had never had

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[2]In the present study, the magnitude of impairment or disability will refer to performance loss on an evaluation instrument following an injury.

a serious hand injury was used to obtain the regression weights. This approach assumes that the relationship of independent to dependent variables is similar for noninjured persons and for injured persons prior to their debilitation.

Method

Subjects

One hundred and ninety-two female and 108 male Appalachian State University undergraduates served as subjects. The participants were between 18 and 25 years of age, and none had a serious hand injury that impaired their performance. The students received course credit for their involvement in the investigation.

The data from 4 other persons was not included in the analysis because they had previously incurred a hand injury that could have affected their performances.

Procedure

The subject was taken by the evaluator to a 3.11 x 2.95 m room containing the testing equipment. The subject was asked if there was a history hand or wrist injury. Detailed notes were made regarding the nature of any reported injury. The first author used these notes to determine if an injury was sufficiently severe to preclude inclusion in the data analyses.

Height and weight were measured on a Health-o-Meter manufactured by the Continental Scale Company. The sex of the subject was noted and hand dominance was ascertained. Hand dominance was determined by asking the subject which hand was used for writing.

The subjects were then assessed using Hand Volumeter Set #3511 (Volumeters Unlimited). This test requires the individual to gradually immerse the hand until fingers straddle a rod situated in the beaker. Hand volume was indicated by the amount of water displaced. The right hand was measured, then the left hand.

Three trials of static and one trial of dynamic performance were obtained from each hand using Tool #162. The investigators followed testing procedures recommended by the Baltimore Therapeutic Equipment Company (J. Jacobs, personal communication, January 1988).

Results

Reliability coefficients were calculated to determine the consistency of static performance across trials. Alpha coefficients (Cronbach, 1951) were .990 for right hand and .991 for left hand static performance. Mean static scores were used in all following analyses, because the reliabilities were high.

Multiple regressions were computed to estimate preinjury right hand static, left hand static, right hand dynamic and left hand dynamic performances. Separate equations were developed to estimate the preinjury performance of clients with injuries to one (Appendix A) and both hands (Appendix B). Equations estimating the BTE scores of persons with injuries to one hand used weight, height, hand volume, hand dominance, sex, and performance on the noninjured hand as independent variables. Estimations of the preinjury performances of persons with injuries to both hands used the same independent variables, except that performance on the noninjured hand and hand volume were not tested for inclusion in the equations.

The variables were regressed using a forward solution. Only those independent variables that produced a significant increase in the explained variance were included in the regression equations. A .05, level of significance was used in testing the variables.

The Appendixes indicate that each of the equations accounted for a substantial proportion of the variability between subjects. The coefficients of determination ranged from .843 to .915 for estimates of the preinjury performance of persons with an injury to one hand and from .564 to .770 for estimates of the preinjury performance of persons with an injury to both hands. Also, equations estimating preinjury static performance accounted for more of the variance than equations estimating preinjury dynamic performance.

Discussion

To demonstrate the use of the equations in the Appendixes, let us see how a vocational evaluator would determine loss in dynamic hand strength following an accident. The client in our example is a female industrial worker with a disability to the right hand.

The first step in the evaluation is to obtain an estimate of the client's hand strength before the accident. Regression 2 in Appendix A contains a list of those variables that are needed to estimate the preinjury right hand dynamic performance. Left dynamic, weight and hand dominance produced significant increments in the explained variance and were included in the equation.

The evaluator tested the worker and found her left hand dynamic performance to be 2070 engals. Her weight was 112 lb and she was right hand dominant prior to the accident. The notes below Appendix A provided the therapist with the numerical code assigned to the hand dominance variable (right handed = 1). The notes also indicate the units of measurement and codes used to assess other variables.

The values for left dynamic performance (L DYNAMIC), weight (WT), and hand dominance (DOM) were inserted into the regression equation. An estimate of the worker's right hand dynamic strength prior to her disability was obtained after a few calculations.

$$6.696 + .962(\text{L DYNAMIC}) + 4.669(\text{WT}) - 288.550(\text{DOM}) =$$

$$6.696 + .962(2070) + 4.669(112) - 288.550(1) =$$

$$6.696 + 1991.340 + 522.928 - 288.550 = 2232.414$$

Appendix A also shows that the regression equation estimating preinjury right hand dynamic performance is highly significant. The coefficient of determination (R^2) reveals that the equation accounts for 84% of the variance in subject's scores. High coefficients of determination, such as this one, indicate that the equation yields an accurate estimate of preinjury performance.

In the case of the industrial worker, the purpose of the evaluation was to discover the magnitude of strength loss resulting from the accident. This required a comparison of her current strength to her estimated strength before her impairment. She was assessed on Tool #162 and her current dynamic strength was 1065 engals. A difference of 1167.41 engals was found between her current and her estimated preinjury performances.

$$\left[\begin{array}{c}\text{Current}\\ \text{Performance}\end{array}\right] - \left[\begin{array}{c}\text{Preinjury}\\ \text{Performance}\end{array}\right] = \left[\begin{array}{c}\text{Loss in}\\ \text{Performance}\end{array}\right]$$

$$1065 - 2232.414 = -1167.414$$

Only a few computations were required to determine the per cent of her dynamic strength lost as a result of the accident.

$$\left[\frac{\text{Performance Loss}}{\text{Preinjury Performance}}\right] * 100 = \text{Per Cent Loss}$$

$$\left[\frac{-1167.414}{2232.414}\right] * 100 = -52.294\%$$

The evaluator has now accurately estimated the extent of disability caused by the accident. Hopefully, our demonstration has shown how easy it is to apply these equations and BTE users are thinking of situations in which objective assessments of performance loss would be helpful. However, we must be wary that the ease with which these equations can be calculated does not lead us to neglect certain sound evaluation practices. Several cautions must be observed in order to avoid assessment errors.

The equations should not be used if the injury substantially impacted the predictor variables. For instance, a large change in weight following a disability would result in errors in the estimation of preinjury performance. The equations should also not be applied if a compensatory increase in the strength of the nonimpaired hand has occurred following the injury.

Evaluators should restrict the use of the equations to clients who are similar to the persons in the sample. Our sample was composed of young adults. At present, we do not know if similar regression coefficients would be found with a sample of older adults. Research is needed to assess the extent that equations estimating preinjury performance are age-specific. Ideally, the samples used in these studies should be diverse, and age should be a variable tested for inclusion in the regression analysis.

We hope that this will be one of the first in a series of investigations which will provide vocational evaluators with increasingly precise estimates of performance loss due to injury. The methodology and statistical procedures used to generate these equations have great generality and should not be confined to the BTE and Jamar. Equations should be developed to estimate performance loss with other assessment instruments, client populations and disabilities. For instance, multiple regression can be used to estimate the magnitude of injuries to arms, legs and the back. Investigations realizing the potential of this methodology will create a new tool, giving us the power to objectively determine performance loss caused by accident or injury. These studies will move us a step further from reliance on subjective opinion and a step closer to a science of vocational assessment.

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Appendix A

Multiple regressions estimating the preinjury performance of persons with an injury to one hand

Regression Equation	R^2	R^2(Chn)
Regression 1: Estimate Right Static		
Step 1		
8.151 + 1.054 (L STATIC)	.907***	.907***
Step 2		
- 40.925 + .943 (L STATIC) + .182 (LV)	.912***	.005***
Step 3		
8.587 + .895 (L STATIC) + .158 (LV) - 16.308 (SEX)	.914***	.002*
Regression 2: Estimate Right Dynamic		
Step 1		
225.074 + 1.005 (L DYNAMIC)	.837***	.837***
Step 2		
- 267.543 + .956 (L DYNAMIC) + 4.533 (WT)	.841***	.004**
Step 3		
6.696 + .962 (L DYNAMIC) + 4.669 (WT) - 288.550 (DOM)	.843***	.002*
Regression 3: Estimate Left Static		
Step 1		
17.131 + .860 (R STATIC)	.907***	.907***
Step 2		
91.808 + .761 (R STATIC) - 26.653 (SEX)	.913***	.006***
Step 3		
77.089 + .754 (R STATIC) - 26.871 (SEX) + 15.570 (DOM)	.915***	.002**
Regression 4: Estimate Left Dynamic		
Step 1		
353.390 + .833 (R DYNAMIC)	.837***	.837***
Step 2		
- 812.482 + .714 (R DYNAMIC) + 3.696 (RV)	.852***	.015***
Step 3		
413.334 + .686 (R DYNAMIC) + 2.473 (RV) - 366.196 (SEX)	.857***	.005**
Step 4		
146.128 + .687 (R DYNAMIC) + 2.331 (RV) - 361.122 (SEX) + 289.817 (DOM)	.860***	.003*

Note. L = Left. R = Right. WT = Weight. DOM = Hand dominance prior to injury. The following units of measurement and codes were used: Static, in./lb; dynamic, engals; WT, lb; RV, cc; LV, cc; SEX, Males = 1, Females = 2; DOM, Right handed = 1, Left handed = 2.

R^2 = Coefficient of determination of the regression equation. R^2(Chn) = Coefficient of determination of the change in the regression equation.

*$p < .10$. **$p < .05$. ***$p < .01$.

Appendix B

Multiple regressions estimating the preinjury performance of persons with an injury to both hands

Regression Equation	R^2	R^2(Chn)
Regression 1: Estimate Right Static		
Step 1		
- 227.304 + 1.186 (LV)	.660***	.660***
Step 2		
- 166.803 + .683 (LV) - 108.996 (SEX)	.756***	.095***
Step 3		
42.945 + .651 (LV) - 102.266 (SEX) + 1.896 (HT)	.760***	.004*
Step 4		
- 28.933 + .868 (LV) - 92.502 (SEX) + 2.583 (HT) - .571 (WT)	.765***	.006**
Regression 2: Estimate Right Dynamic		
Step 1		
- 3517.474 + 16.526 (LV)	.513***	.513***
Step 2		
1048.620 + 10.701 (LV) - 1262.816 (SEX)	.564***	.051***
Regression 3: Estimate Left Static		
Step 1		
544.095 - 174.141 (SEX)	.670***	.670***
Step 2		
181.676 - 102.839 (SEX) + .571 (RV)	.753***	.084***
Step 3		
158.417 - 95.958 (SEX) + .766 (RV) - .494 (WT)	.759***	.006**
Step 4		
14.318 - 87.057 (SEX) + .779 (RV) - .628 (WT) + 2.146 (HT)	.765***	.006**
Step 5		
- 2.481 - 87.003 (SEX) + .769 (RV) - .627 (WT) + 2.063 (HT) + 24.122 (DOM)	.770***	.005*
Regression 4: Estimate Left Dynamic		
Step 1		
- 3301.256 + 15.402 (RV)	.561***	.561***
Step 2		
939.883 + 10.013 (RV) - 1173.639 (SEX)	.612***	.051***

Note. L = Left. R = Right. WT = Weight. HT = Height. DOM = Hand dominance prior to injury. The following units of measurement and codes were used: Static, in./lb; dynamic, engals; WT, lb; HT, in., RV, cc; LV, cc; SEX, Males = 1, Females = 2; DOM, Right handed = 1, Left handed = 2.

R^2 = Coefficient of determination of the regression equation. R^2(Chn) = Coefficient of determination of the change in the regression equation.

*$p < .10$. **$p < .05$. ***$p < .01$.

A Comparison of Static and Dynamic Strength as Measured by the BTE and WEST 4

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Abstract

The present study compared assessments made on two evaluation instruments used to measure torque, BTE and WEST 4. The similarities and disimilarities between static and dynamic measures were also investigated. There was no significant relationship found between measures taken on the BTE, static or dynamic, and measures taken on the WEST 4. This suggests that these two instruments, which are often assumed to be measuring the same ability are actually measuring very different things. A fairly high significant correlation was found between static and dynamic measures taken on the BTE. Although this relationship was high, less than 50% of the variance between the two measures was shared. This suggests that in assessment, as in conditioning, both static and dynamic measures are neccesary to provide a comprehensive measure.

A Comparison of Static and Dynamic Strength as Measured by the BTE and WEST 4

An individuals ability to apply torque is an often measured attribute in physical capacity evaluation and in occupational therapy practice. Two commonly used instruments to assess torque are the Work Evaluation Systems Technology Maximum Torqueing Test (WEST 4) and the Baltimore Therapeutic Equipment Work Simulator (BTE). The WEST 4 Work Capacity Evaluation Device User Manual (1987) defines torque as "a force that acts to produce rotation" (p. 17). For example, a torqueing motion is required to turn a door knob, or to use a screwdriver. The BTE user manual defines torque as "a twisting force" (p. 44). BTE uses the example of a person applying torque to their watch stem when they wind their watch. This paper proposes to investigate the similarities and differences of these two apparently similar assessment devices and the abilities which they measure.

Another facet of the present study was to examine the similarities and differences between static and dynamic torque measures. Although there is little empirical evidence demonstrating the difference or similarities between dynamic and static strength assesssment, the literature suggests definite differences in the benefits derived from isometric (static) versus isokenetic (dynamic) conditioning (Pipes, 1977; Asmussen, 1981). For example, Pipes (1977) reported that isometric training may be ineffective in increasing actual atheletic performance. Asmussen (1981) reported that "... in both kinds of exercise, force (tension) is produced, but only in dynamic exercise is work performed also" (p.I-3). Therefore, it is reasonable to assume that the most proper assessment procedure for work evaluation would be a dynamic evaluation.

Static and dynamic measures have both been obtained for many years even though there is a

paucity of information comparing various vocational instruments that assess the two. One study by Hunsicker and Greey (1957) reported that there is a difference between static and dynamic strength but maintained that the relationship between the two is low. One obstacle in making such comparisons is that most vocational assessment devices do not yield both static and dynamic measures of performance. One advantage of the BTE is that it evaluates both static and dynamic functioning. The present study compared static and dynamic measures using tool #502 of the BTE and static and dynamic measures of the BTE with performance on the WEST 4, which yields a measure that is dynamic in nature (L. N. Matheson, personal communication, February 27, 1989).

Method

Subjects

The subjects were 62 females enrolled in psychology courses at Appalachian State University. The ages of the participants ranged from 18 to 25 years. If the subjects reported any history of serious hand injury it was confirmed by the experimenter that the injury no longer hindered the subject's performance. The students received extra course credit for participating in the investigation. The data from 3 other women were not included in the analysis, because they had sustained a serious hand injury.

Procedure

The testing was performed in two adjoining rooms, one containing the BTE, and the other containing the WEST 4. The evaluators questioned the subject to find if there was a history of hand injury. Hand dominance was determined by asking the subject which hand was used for writing. Weight and height were measured then the sex and age of the subject was recorded. Half of the subjects were then tested on the BTE and then the WEST 4. The remaining subjects were evaluated on the WEST 4 before the BTE. Approximately 30 minutes seperated testing on the two assessment devices to minimize fatigue effects.

The WEST 4 was administered according to instructions contained in the WEST 4 Work Capacity Evaluation Device User Manual (1987). The apparatus consists of six identical compression tubes mounted on a square steel crosspiece. The WEST 4 was secured to a table with the compression tubes 1.04m above the floor. Each compression tube contained a spring that the subject tightened with a nutdriver. As the subject rotated the nutdriver, the evaluator gradually increased resistance by tightening an adjustment screw on the compression tube. The evaluator measured maximum output with a torque wrench when the subject could no longer turn the nutdriver. Three pronation trials were conducted with each hand. The subject was tested with a ruler between the arm and torso to reduce superfluous body movements. Approximately 15 seconds seperated trials.

The BTE was administered according to instructions contained in the protocol for the Baltimore Therapeutic Equipment Work Simulator Upper Extremity Evaluation. Static and dynamic pronation measures were taken from each hand using tool #502. For the static exercise three pronation trials were recorded for each hand. The subjects were positioned with their elbow at approximately 80 degrees flexion and their feet shoulder width apart. A template was placed between the arm and torso to minimize superfluous body movements. The BTE was set in the "manual static" mode for this exercise. The subjects were instructed to "turn the screwdriver handle gradually as hard as they could even though it would not feel as if it were moving".

The scores for the three trials were averaged and then divided by two to determine the exercise level for the dynamic assessment. After the exercise level was set for the subject, they were repositioned. At this time they were instructed to turn the tool as fast as they

could for 10 seconds after which they would be instructed to stop and take their hand off of the tool as quickly as possible. They were allowed to turn the tool twice to become comfortable with the resistance before beginning the exercise.

Results

The results were analyzed seperately for each hand. For both hands the correlations between static and dynamic performance on tool #502 of the BTE were statistically significant,

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Insert Table 1 about here

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indicating that the two measures were related. However, the omega square was moderate, less than 50% of the variance in dynamic BTE scores could be accounted for by knowing an individual's static performance. This outcome is consistent with the findings of Hunsicker and Greey (1957) and other investigators who have contended that both static and dynamic measures are necessary to provide a thorough analysis of manual strength.

Reliability coefficients (Cronbach's alpha) were calculated for all repeated measures on the WEST 4 and the static measures for the BTE. Both instruments provided highly reliable measures. On the WEST 4 the alphas were .94 and .97 for the right and left hands, respectively. Alphas of .91 and .95 were found for the right and left hand measures on the BTE tool # 502 static measures.

The most interesting finding concerned the relationship of WEST 4 scores to static and dynamic performance of the BTE. The WEST 4 performance scores were only slightly correlated with BTE static and dynamic performance scores on the right hand measures, and there was no relationship between left hand scores taken on the WEST 4 and BTE static and dynamic left hand scores. A modest though statistically significant correlation was found between WEST 4 and BTE static measures taken on the right hand and there was no relationship between WEST 4 and BTE static measures taken on the left hand. The correlation between the WEST 4 and BTE dynamic performances did not achieve statistical significance for the left hand, however the right hand scores were significantly correlated, but again the relationship was small.

Discussion

These findings provide a graphic illustration of the dangers of relying on face validity. Certainly, assessments using the BTE tool #502 and WEST 4 Maximum Torqueing Test have a strong face validity and are supposedly both measuring the same ability, torque. This leads to the inaccurate assumption that the performance scores on the two evaluation instruments are highly related. However, the data clearly indicates that the abilities assessed by the two testing devices have little in common. Less than 10% of the variance was shared between BTE static and WEST 4 scores. We found little evidence to suggest that there was a strong relationship between BTE dynamic and WEST 4 scores.

It is clear that the BTE and WEST 4 are measuring very different abilities but, it is unclear as to exactly what those abilities are. Unfortunately, the empirical literature does not reveal the abilities that either instrument assesses. Before definitive answers to these questions can be found, much additional research is needed to relate both BTE and WEST 4 performance measures to some identifiable external criterion. Ideally this criterion should be a widely accepted, valid, and easily measurable construct, such as intelligence or self-esteem. Until such validity information is available, the judgements and reccomendations made on the basis of BTE and WEST 4 assessments are not readily defensible.

Although these findings raised questions regarding the concurrent

validities of both the BTE and WEST 4, the therapeutic value of these instruments is not diminished. Both assessment or therapeutic devices have been found to be quite reliable thus enabling the therapist to use initial assessments as benchmarks for therapeutic gain. Problems arise when assessments made on one of the devices is recorded and progress noted when switching to the other piece of equipment as in facilities where both tools are being used. When initial assesssments are made using one tool and therapy initiated using another, progress cannot be justified on the basis of the initial evaluation.

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Table 1
Correlations between assessments made on the BTE tool #502 and the WEST 4

	WEC	R502S	L502S	R502D	L502D
WEA	.83**	.33*	.24	.30*	.23
WEC		.09	-.08	.04	-.07
R502S			.80**	.68**	.63**
L502S				.65**	.65**
R502D					.86**

Note: WEST 4 and BTE static scores were measured in inch pounds. BTE dynamic scores were measured in engals.

*p < .01
**p <.001

Value Labels
WEA = WEST 4, Right Hand, Pronation
WEC = WEST 4, Left Hand, Pronation
R502S = BTE, Right Hand, Static
L502S = BTE, Left Hand, Static
R502D = BTE, Right Hand, Dynamic
L502D = BTE, Left Hand, Dynamic

CONSTRUCT VALIDATION OF THE MICROCOMPUTER EVALUATION SCREENING AND ASSESSMENT (MESA) WITH THE GENERAL APTITUDE TEST BATTERY (GATB), DIFFERENTIAL APTITUDE TESTS (DAT), AND THE TESTS OF ADULT BASIC EDUCATION (TABE)

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Abstract

This study estimated the construct validity of MESA generated aptitude, academic achievement, and general educational development (GED) scores by comparing them to corresponding scores produced by the GATB, DAT, and TABE. Correlational evidence was found to support the construct validity for most of the aptitude and academic achievement components of the MESA. MESA produced math scores as well as numerical, form perception, and clerical aptitude scores were not, however, related to similar scores produced by more well established instruments. Implications for future refinement and validation of the MESA are discussed.

The Microcomputer Evaluation Screening and Assessment (MESA) is one of the most popular computer-based vocational evaluation systems used today, having been sold to over 1,800 rehabilitation and related facilities (personal communication, P. Rathstatter, May 17, 1988). The MESA system represents a substantial investment for the consumer; a single station, without a computer, costs approximately $4,000. Despite its popularity and cost, published data supporting its validity are scarce (Dotterbusch, 1987).

The MESA is touted as a criterion-referenced device and its developers rely primarily upon content validation and intercorrelations among MESA scores to support its construct validity. Valpar suggests that since the MESA is criterion-referenced, rather than norm-referenced, correlations between it and other measures are unimportant or even irrelevant. A number of authorities recommend, however, that criterion-referenced tests be evaluated against other measures in order to determine construct validity (Berk, 1984; Cronbach, 1971; Hambleton, 1984; Linn, 1980; Messick, 1975).

The purpose of the present study was to estimate the construct validity of the MESA's aptitude, academic achievement, and General Educational Development (GED) scores by comparing them to corresponding scores on other instruments. Three well established instruments were chosen for this purpose: the General Aptitude Test Battery (GATB), the Differential Aptitude Tests (DAT), and the Tests of Adult Basic Education (TABE).

Method

Participants

The MESA, GATB, TABE, and the DAT were administered to 64 participants as part of a comprehensive vocational evaluation at a non-profit rehabilitation facility during 1986 and 1987. The 54 men and 13 women participating in the study ranged in age from 17 to 52 years (M = 27.3, SD = 9.6) with educational levels ranging from eight to 16 years of school (M = 11.7, SD = 1.7). All participants were receiving rehabilitation services from state funded agencies and disability diagnoses for the participants included: Developmental disability (n = 4, 6.0%), learning disability (n = 11, 16.4%), mental illness (n = 21, 31.3%), multiple disabilities (n = 4, 6.0%), orthopedic disability (n = 13, 19.4%), visual impairment (n = 1, 1.5%), and other (n = 13, 19.4%).

Instrumentation

MESA. As summarized by Botterbusch (1987), the MESA system is comprised of multiple subtests. All subtests combined yield 84 items of information which are designed to assess client characteristics related to vocational potential, with an emphasis on those identified in Worker Qualifications Profiles (WQPs) defined by the United States Department of Labor. Among the characteristics for which scores are derived are aptitudes, academic achievement, physical capacities, vocational interests, and vocational awareness. The foci of this study are the MESA aptitude and academic achievement scores.

Aptitude scores include the 11 WQP aptitudes in the following areas: Intelligence or General Learning (G), Verbal (V), Numerical (N), Spatial (S), Form Perception (P), Clerical Perception (Q), Motor Coordination (K), Finger Dexterity (F), Manual Dexterity (M), Eye-Hand-Foot Coordination (E), and Color Discrimination (C). The first nine aptitudes assessed by the MESA system are also assessed by the General Aptitude Test Battery (GATB; United States Department of Labor, 1970). Aptitude scores on the MESA correspond to the 1-to-5 WQP aptitude levels, ranging from the highest to lowest standing relative to the general population. However, since the MESA is not designed to assess the very highest and lowest aptitude levels, scores of "1" are collapsed with "2" and "5" with "4". The remaining scores of "2", "3", and "4" then indicate aptitude levels in the highest, middle, and lowest one-third of the population, respectively.

Academic achievement scores produced by the MESA include reading, math, vocabulary, and spelling. Reading level is assessed by two methods, a short paragraph and verbal opposites exercises; the exercises are written at the 4th, 6th, 8th, 12th, and 14th grade levels. Math, vocabulary, and spelling problems are presented in order of ascending difficulty and scores are reported in criterion-referenced grade levels ranging from the fourth to the tenth grade+ level (Valpar International, 1984). Hence, scores are compared to the content domain taught at each grade level, rather than comparing scores to individuals enrolled in a particular grade (e.g., a 5.9 grade level math score indicates that the person can successfully complete math items that are typically taught in the 5th grade during the 9th month).

As an adjunct to the academic achievement scores, the MESA produces General Educational Development (GED) scores on reasoning, math, and language. According to Valpar,

> GED embraces those aspects of education (formal and informal) which contribute to the worker's (a) reasoning development and ability to follow instructions; and (b) acquisition of 'tool' knowledge such as language and mathematical skills. This is education of a general nature which does not have a recognized, fairly specific occupational objective. Ordinarily, such education is obtained in elementary school, high school, or college. However, it derives also from experience and self-study (p. 106; MESA Statistical Information Report, undated).

MESA GED scores are reported from one (lowest development) through six (highest development).

GATB. The GATB, a multiple aptitude test battery (United States Department of Labor, 1970), was developed by the United States Employment Service more than 40 years ago (Dvorack, 1947). Droege (1983), among others, refers to the GATB as the best validated aptitude test battery ever developed. Twelve subtests are used to derive nine aptitude scores -G, V, N, S, P, Q, K, F, and M--the first nine WQP aptitude patterns. GATB scores are reported as standard scores with a mean of 100 and standard deviation of 20. For the purposes of the present study, GATB aptitude scores were transformed to the 2-to-4 scale used for MESA aptitude scores, where "2" = 109 or higher, "3" = 92-108, and "4" = 75-91, corresponding to the highest, middle, and lowest one-thirds of the general population, respectively.

DAT. The DAT was revised in 1980 and consists of a battery of eight tests yielding nine scores: Verbal Reasoning, Numerical Ability, Verbal Reasoning-Numerical Ability, Abstract Reasoning, Clerical Speed and Accuracy, Mechanical Reasoning, Space Relations, Spelling, and Language Usage. The Verbal Reasoning-Numerical Ability score is actually the sum of raw scores on the Verbal Reasoning and Numerical Ability tests and is considered to be an index of scholastic aptitude (Bennett, Seashore, & Wesman, 1982). Scores are reported in both percentiles and stanines on each of the eight tests and are given separately for sex and grade level.

According to its developers, "The tests are designed to appraise fundamental intellectual abilities and to avoid as much as possible dependence on the learning of particular school subjects.... The aptitudes or abilities measured by the DAT are important in a great many educational and vocational situations" (Bennett et al., 1982; p. 7). Strong evidence supporting the DAT's reliability and validity have been reported. In fact Anastasi (1988) reports that

> The amount of validity data on the DAT is overwhelming, including several thousand validity coefficients. Most of these data are concerned with predictive validity.... (and) many of the coefficients are high, even with intervals as long as three years

between test and criterion data.... The Verbal Reasoning-Numerical Ability test correlates in the .70s and .80s with composite criteria of academic achievement (p. 394).

TABE. The TABE is an achievement test producing scores in reading, mathematics, and language and was adapted from the California Achievement Tests (CAT), 1970 Edition (CTB/McGraw-Hill, 1976). The TABE is intended to measure basic skills required of an individual to function in our society and is appropriate for use with adults of limited education and from various cultural backgrounds.

The three levels of the TABE, E, M, and D, reflect level of difficulty: easy, medium, and difficult respectively. Level D, used exclusively for this study, subdivides reading into three scores: Vocabulary, Comprehension, and Total Reading; mathematics consists of three scores: Computation, Concepts & Problems, and Total Mathematics; and language consists of four scores: Mechanics, Expression, Mechanics & Expression Total, and Spelling. For the present study, separate scores on Mechanics and Expression were omitted in favor of the combined Mechanics & Expression Total score. Scores on all subtests are reported in norm-referenced grade equivalents ranging from 5.0 to 12.9.

Reliability analyses of the TABE found test-retest and Kuder-Richardson coefficients to be primarily in the .80s and .90s. A validity study performed on the TABE, level D, reported a correlation between it and Tests of General Educational Development (GED Tests) of .56, which according to the test developers, "...indicated a substantial relationship between TABE and GED scores" (p. 9). Further, because of its relationship with the CAT, the TABE developers refer to the extensive validity data supporting the CAT found in the CAT Technical Report (1970).

Results

As an estimate of the MESA's construct validity, Pearson product-moment correlation coefficients were calculated between MESA aptitude scores and corresponding aptitude scores on the GATB and the DAT, and between MESA academic achievement scores (including GED scores) and corresponding academic scores on the DAT and TABE. The following sections detail these analyses.

Aptitude Scores

Table 1 presents correlations between the MESA and GATB aptitude scores (corresponding aptitude scores have been underlined and are found along the diagonal of the matrix). Correlations ranged from .06 (Clerical) to .52 (Verbal). Significant correlations were found between six of the nine corresponding aptitude scores: General Learning (G, r = .42), Verbal (V, r = .52), Spatial (S, r = .44), Motor (K, r = .33), Finger Dexterity (F, r = .37), and Manual Dexterity (M, r = .40). With the exception of Motor (M), the above correlations were at the .01 level of significance. Non-significant correlations for corresponding aptitudes were found for Numerical (N), Form Perception (P), and Clerical (Q) scores.

Table 2 presents correlations between the MESA and DAT aptitude scores. Significant correlations between corresponding aptitudes were found between MESA G and DAT Verbal Reasoning & Numerical Ability ($r = .53$, $p < .01$) and MESA V and DAT Verbal Reasoning ($r = .49$, $p < .01$) and DAT Language Usage ($r = .38$, $p < .05$). Non-significant correlations between corresponding aptitudes were found between MESA N and DAT Numerical Ability; MESA S and DAT Space Relations; and MESA Q and DAT Clerical Speed and Accuracy.

Academic Achievement Scores

Table 3 presents the correlations between MESA academic achievement and GED scores with DAT scores. Regarding corresponding academic achievement scores, significant correlations were found between MESA Math and DAT Numerical Ability ($r = .37$, $p < .05$); MESA Vocabulary and DAT Verbal Reasoning ($r = .57$, $p < .01$) and DAT Language Usage ($r = .35$, $p < .05$); MESA Spelling and DAT Spelling ($r = .67$, $p < .01$); and MESA Reading and DAT Verbal Reasoning ($r = .71$, $p < .01$) and DAT Language Usage ($r = .43$, $p < .01$). MESA GED scores were significantly correlated with the corresponding DAT scores on MESA Reasoning and DAT Abstract Reasoning ($r = .56$, $p < .01$); MESA Math and DAT Numerical Ability ($r = .31$, $p < .05$); and MESA Language and DAT Verbal Reasoning ($r = .59$, $p < .01$) and DAT Language Usage ($r = .35$, $p < .05$).

Table 4 presents the correlations between MESA academic achievement and GED scores with scores on the TABE. Regarding corresponding academic achievement scores, significant correlations were found between MESA Vocabulary and TABE Vocabulary ($r = .59$), Comprehension ($r = .47$), and Reading Total ($r = .58$), and Language ($r = .45$), all of which were at the .01 level of significance. MESA Spelling was significantly correlated with TABE Spelling ($r = .69$, $p < .01$); MESA Reading was significantly correlated with TABE Vocabulary ($r = .45$), Comprehension ($r = .53$), and Reading Total ($r = .54$), and Language ($r = .53$); all correlations were at the .01 level of significance. MESA GED scores were significantly correlated between MESA math and TABE Computation ($r = .32$), Concepts and Problems ($r = .31$), and Math Total ($r = 31$), all of which were at the .05 level of significance. MESA Language produced significant correlates with TABE Vocabulary ($r = .34$, $p < .05$), Comprehension ($r = .41$, $p < .01$), Reading Total ($r = .41$, $p < .01$), and Language ($r = .53$, $p < .01$). The only non-significant

correlations between corresponding MESA and TABE scores involved the MESA academic achievement math score.

Discussion

Despite the small number of participants used in the present study, a number of significant correlations, most at the .01 level of significance, were found between the MESA and other tests which purportedly measure the same constructs. Most of the significant correlations were moderate (in the .40s and .50s); according to Anastasi (1988), correlations between tests "should be moderately high, but not too high. If the new test correlates too highly with an already available test, without such added advantages of brevity or ease of administration, then the new test represents needless duplication" (p. 154). In terms of aptitude scores, the MESA G and V scores were found to be correlated with corresponding scores on both the GATB and DAT, while correlations between N and S scores were less consistent. MESA aptitude scores P and Q failed to produce significant correlations with corresponding GATB scores indicating that they may be less valid measures of these aptitudes. These results are somewhat inconsistent with similar research conducted by one of the present authors. Janikowski (1989, March) found that only three of the nine MESA aptitude scores (V, S, and P) correlated significantly with corresponding GATB aptitudes; however, this study employed a different population (non-disabled, displaced workers) and a smaller sample size. Nonetheless, this discrepancy suggests a need for additional research on the validity of the MESA aptitude scores for differing client populations.

The MESA academic achievement and GED scores produced a number of significant correlations with corresponding scores on the DAT and TABE. All of the corresponding achievement and GED scores between the MESA and DAT were significantly correlated with six out of the ten being significant at the .01 level. When compared to the TABE, the MESA correlated significantly with all corresponding subtests except for the academic achievement math score. In comparison to MESA achievement, MESA aptitude scores tended to demonstrate weaker correlations with other measures. One reason for this difference may be the restricted range (2 - 4) used for the aptitude scores.

In sum, moderately strong evidence was found supporting the construct validity of most the MESA aptitude and achievement scores. MESA numerical and math scores, along with form perception and clerical aptitude scores, however, appear to present some problems. The MESA N score was not significantly correlated with either the GATB N or DAT Numerical Ability score. The MESA academic achievement math score was not related to corresponding TABE scores and the MESA GED math tended to produce smaller coefficients with both the DAT and TABE. These findings indicate that MESA numerical and math scores may be less adequate measures. Since both the numerical and math scores are derived using the same exercise (Valpar International, 1985), there may be problems with the MESA's mathematics item base that warrant investigation its developers. In addition, the MESA N, P, and Q scores were not significantly correlated with GATB N, P, and Q scores, indicating that the items used to derive these scores are not measuring the same constructs. Continued research into the MESA system's validity seems necessary and will, hopefully, result in specific refinements of this popular evaluation system.

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Table 2

Correlations Between MESA Aptitude and GATB Scores

	MESA Scores								
GATB Scores	G	V	N	S	P	Q	K	F	M
G (General)	.43**	.82**	.11	.09*	.06	.19	.24	.19	.13
V (Verbal)	.61**	.83**	06	19	-.09	.16	05	.09	-.14
N (Numerical)	.68**	.56**	.17	.09	-.19	.33*	.05	03	.09
S (Spatial)	.66**	.65**	.01	.41**	.31	.06	.36**	.39**	.36
P (Form Perc)	.17	16	07	39	23	14	.31	24	.13
Q (Clerical)	.13*	.04**	.76	13	01	.85	.17	.09	05
K (Motor)	.01	.06	-.02	.15	.16	.27	.33*	.33*	.61**
F (Finger Dex.)	.24	.22	.15	.39*	.31	.54**	.46**	.37**	.27
M (Manual Dex.)	-.06	-.07	-.05	.11	.44**	.22	.63**	.49**	.19**

*p ≤ .05. **p ≤ .01.

a = 34

Table 3

Correlations Between MESA Aptitudes and Subtests of the DAT

	MESA Scores								
DAT Scores	G	V	N	S	P	Q	K	F	M
Verbal Reasoning	.69*	.68**	.06	.13	.16	.24	.16	.09	-.02
Numerical Ability	.54**	.67**	.23	.09	.14	.31	.29	.21	.11
Verbal Reas & Numerical Ab	.63**	.54**	.14	.18	.16	.29	.25	.17	.01
Abstract Reasoning	.58**	.63*	.13	.31	.13	.38*	.29	.24	.02
Clerical Speed & Accuracy	.19	.11	.21	.37*	.78	.83	.37*	.41*	.25
Mechanical Reasoning	.48*	.35	.09	.53**	.31	.11	.34	.38	.31
Space Relations	.51**	.43*	.18	.31	.33	.25	.44*	.43*	.17
Spelling	.41*	.36	-.19	.06	.22	.17	.08	-.05	-.30
Language Usage	.48**	.36*	-.04	.06	-.09	.03	.11	-.02	.02

Note. MESA aptitude scores are transformed so that higher scores are indicative of a higher aptitude level.

*p ≤ .05. **p ≤ .01

a = 34

Table III

Correlations Between MESA Academics and GED scores and the DAT

	MESA Academics[a]				MESA GED[b]		
DAT Scores	Math	Vocabulary	Spelling	Reading	Reasoning	Math	Language
Verbal Reasoning	.14	.37**	.24	.71**	.68**	.13	.38**
Numerical Ability	.37*	.21	.36	.55*	.65**	.31*	.53**
Verbal Reas & Numerical Ability	.28	.43**	.32*	.69**	.72**	.30*	.63**
Abstract Reasoning	.31	.23	.22	.37*	.56**	.13	.35*
Clerical Speed & Accuracy	.25	.29	.01	.15	.18	.13	.11
Mechanical Reasoning	.23	.01	.02	.22	.34*	.17	.32*
Space Relations	.01	.19	.23	.37*	.49**	.13	.40**
Spelling	-.19	.34*	.67**	.33*	.44**	.11	.45**
Language Usage	-.09	.35*	.31*	.43**	.39*	.06	.35*

*p ≤ .05. **p ≤ .01.

a n = 48. b n = 41.

Table IV

Correlations Between MESA Academics and GED scores and the TABE

	MESA Academics				MESA GED		
TABE Scores	Math	Vocabulary	Spelling	Reading	Reasoning	Math	Language
Reading							
Vocabulary	.27	.58**	.31*	.45**	.42**	.31	.34*
Comprehension	.17	.49**	.24	.53**	.39*	.21	.41**
Total	.21	.56**	.31*	.54**	.46**	.28	.41**
Math							
Computation	.29	.32*	.26	.35**	.93**	.32*	.36**
Concepts & Problems	.29	.41**	.34*	.37**	.39**	.31*	.31**
Total	.29	.29*	.29	.46**		.31*	.33**
Language							
Mechanics & Expression	.15	.48**	.48*	.55**	.39**	.13	.33**
Spelling	-.01	.46**	.86*	.49**	.43**	.16	.47**

*p ≤ .05. **p ≤ .01.

a varies between 44 and 46 with pairwise deletion of missing data.